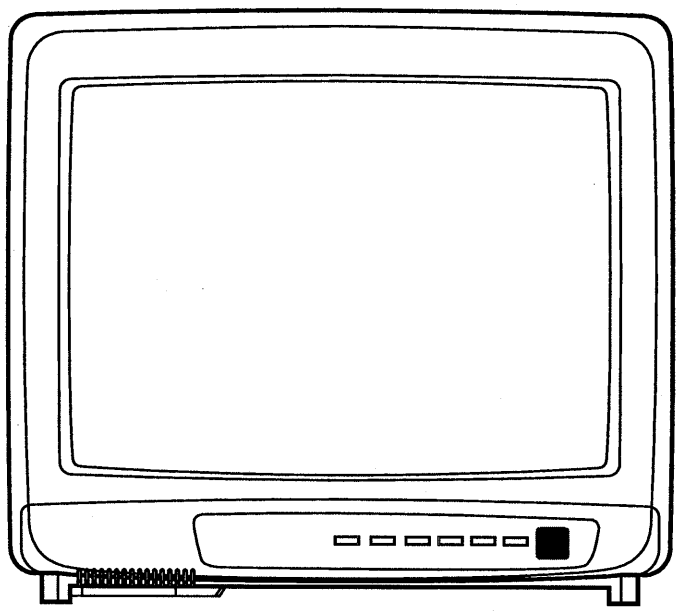
FUNAI Symphonic

SERVICE MANUAL

13" COLOR TELEVISION

ST4813/F4813T



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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SPECIFICATIONS

< TUNER>

ANT. Input ---------- 75ohm Unbal., F type
Reference Level ---------- 20Vp-p (CRT Green Cathode)
Test Input Signal ---------- 400Hz 30% modulation

Description	Condition	Unit	Nominal	Limit
1. Intermediate Freq.	Picture Sound	MHz MHz	45.75 41.25	— —
2. Peak Picture Sens	VHF CATV UHF	dBμV dBμV dBμV	15 15 15	30 30 40
3. AFT Pull In Range (10mV input)	—	MHz	±2.0	±0.7

< DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection Freq.	Horizontal Vertical	KHz Hz	15.734 60	— —
2. Linearity	Horizontal Vertical	% %	— —	±15 ±10
3. Over Scan	—	%	10	—
4. High Voltage	—	KV	23	—

< VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center Side Corner	mm mm mm	— — —	0.3 1.2 1.5
2. Brightness	APL 100%	Ft-L	60	40
3. Color Temperature	—	°K	9200	—
4. Resolution	Horizontal Vertical	Line Line	250 300	— —

<AUDIO>

All items are measured across 8Ω load at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power	10% THD	W	1	0.8
2. Audio Distortion (w/LPF)	50mW	%	2	7
3. Audio Freq. Response	-3dB	Hz	80~11K	—

Note:

Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

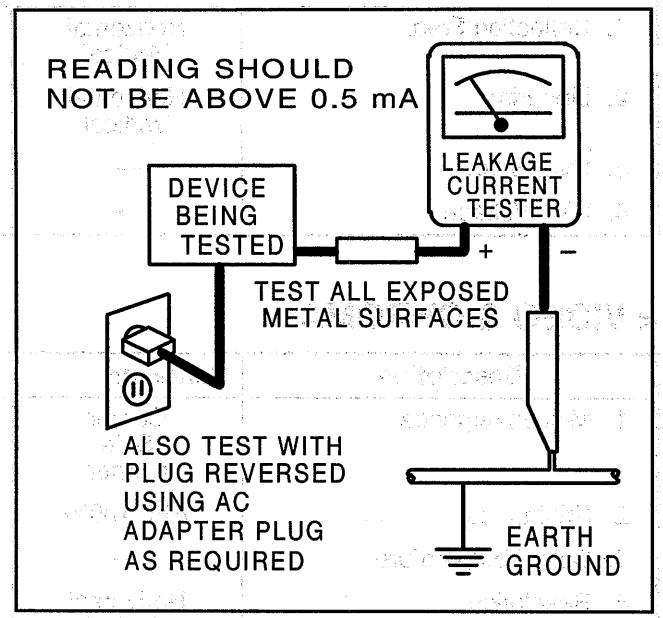
1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:

a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. Antenna Cold Check - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.

d. Leakage Current Hot Check - With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. X-Radiation and High Voltage Limits - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing

is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning -** The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. **Hot Chassis Warning -**

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis normally have 85V AC(RS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (⚠) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the (⚠) symbol are critical for safety.

Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing

2) Double insulated wires

3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape

2) PVC tubing

3) Spacers

4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets. etc.) do not remain inside the set.

K. Crimp type wire connector

When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector (discard it).

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

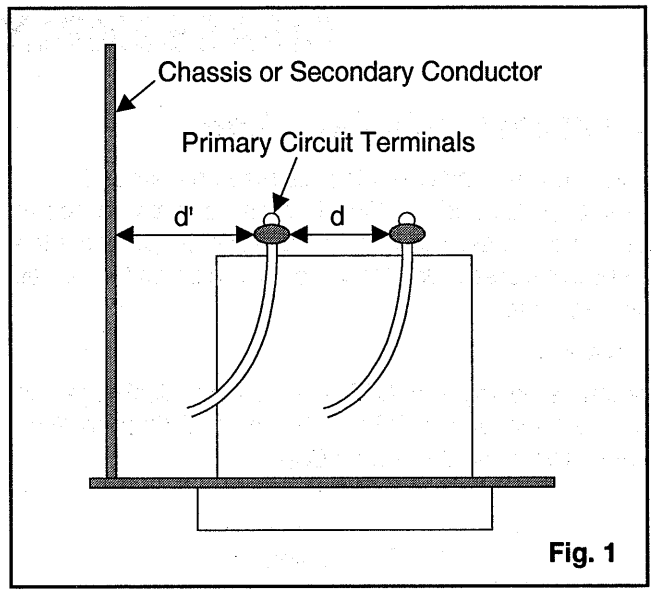


Fig. 1

2. Leakage Current Test

Confirm specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

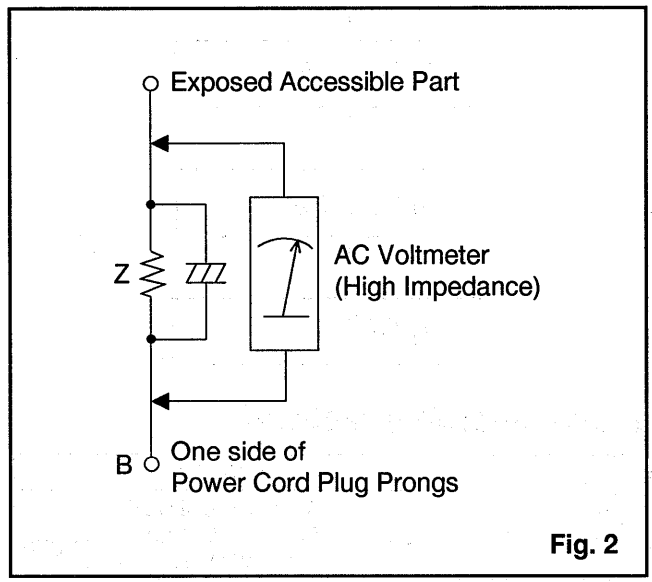


Fig. 2

Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA	0.15μF CAP. & 1.5kΩ RES. connected in parallel	i≤0.5mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

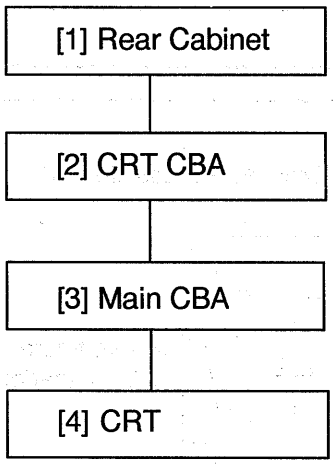
DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

STEP/ LOC. NO.	PART	REMOVAL		
		FIG. NO.	REMOVE/*UNLOCK/ RELEASE/UNPLUG/ UNCLAMP/DESOLDER	NOTE
[1]	Rear Cabinet	1,2	4(S-1)	1
[2]	CRT CBA	4,5	CN501, Anode Cap.	2
[3]	Main CBA	3,5	CN571, CN691, CN801	3
[4]	CRT	4	4(S-2)	4
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤

Note :

①. Order of steps in Procedure. When reassembling, follow the steps in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.

②. Parts to be removed or installed.

③. Fig. No. showing Procedure of Part Location

④. Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two Screw (S-2)

⑤. Refer to the following"Reference Notes in the Table" following.

Reference Notes in the Table

1. Remove 4 screws (S-1) and slide the Rear Cabinet backward.

Caution !!

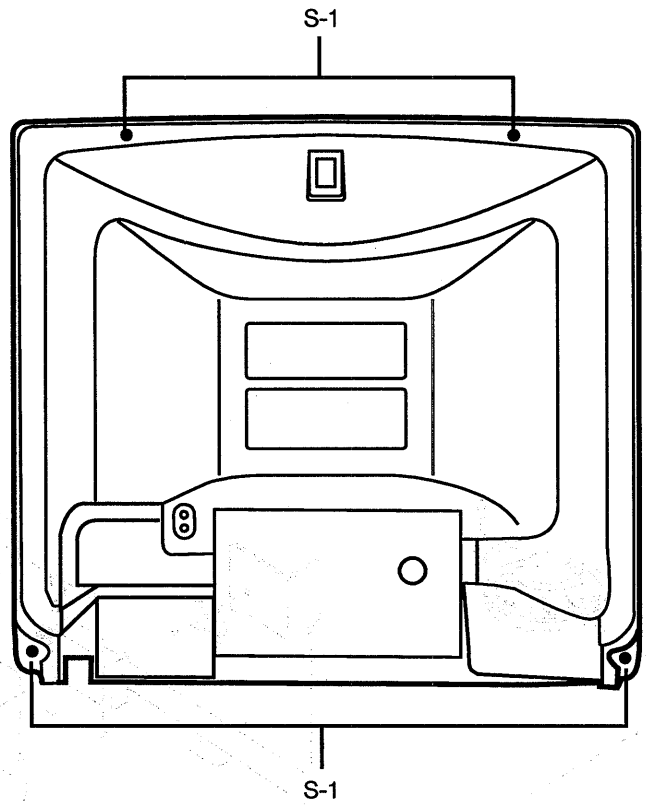
Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

2. (1) If not already removed, first remove the Rear Cabinet.
   (2) Remove CN501 and Anode Cap, then pull the CRT CBA backward.
3. (1) If not already removed, first remove the Rear Cabinet.
   (2) Remove CN571, CN691 and CN801 on the Main CBA and Slide the Main CBA backward.

Caution !!

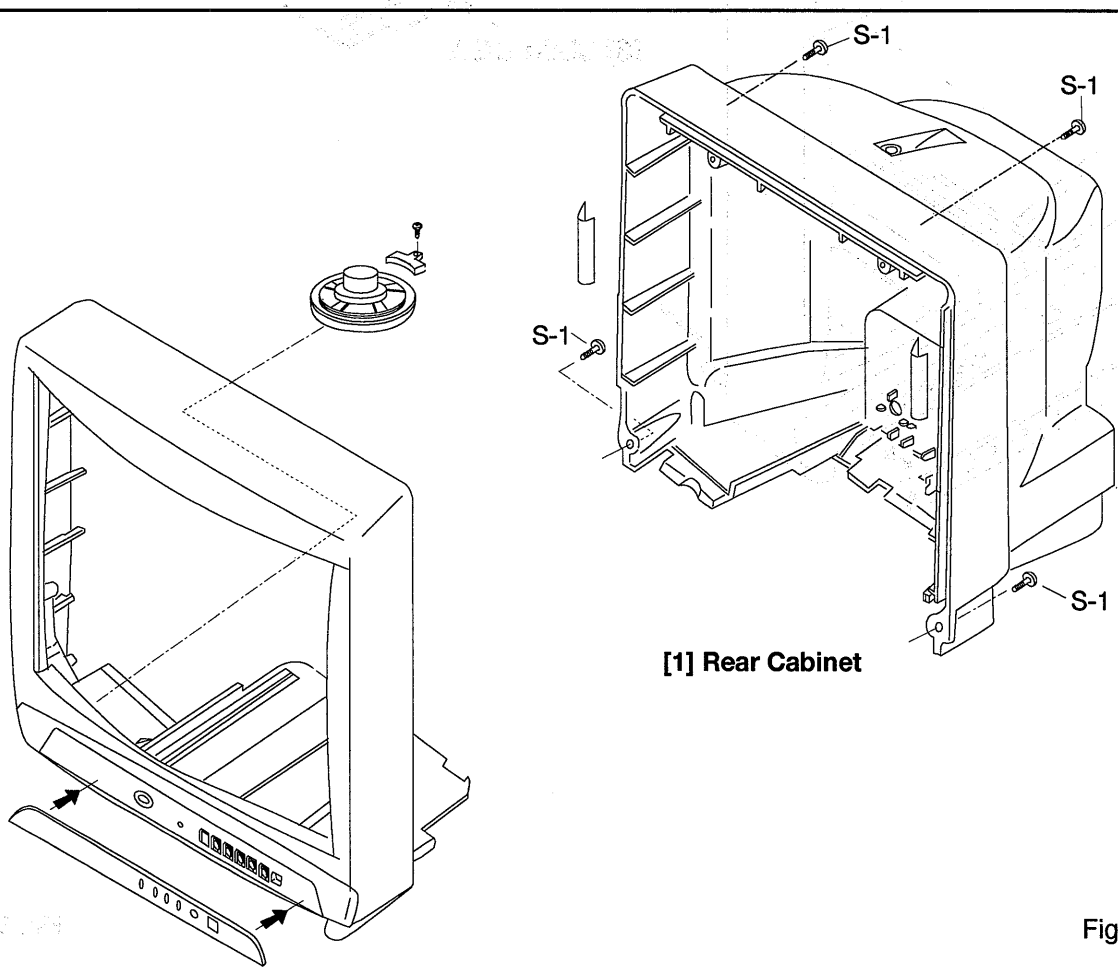
Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

4. (1) If not already removed, first remove the Rear Cabinet.
   (2) Remove 4(S-2), then the CRT can be removed.



[1] Rear Cabinet

Fig. 1



[1] Rear Cabinet

Fig. 2

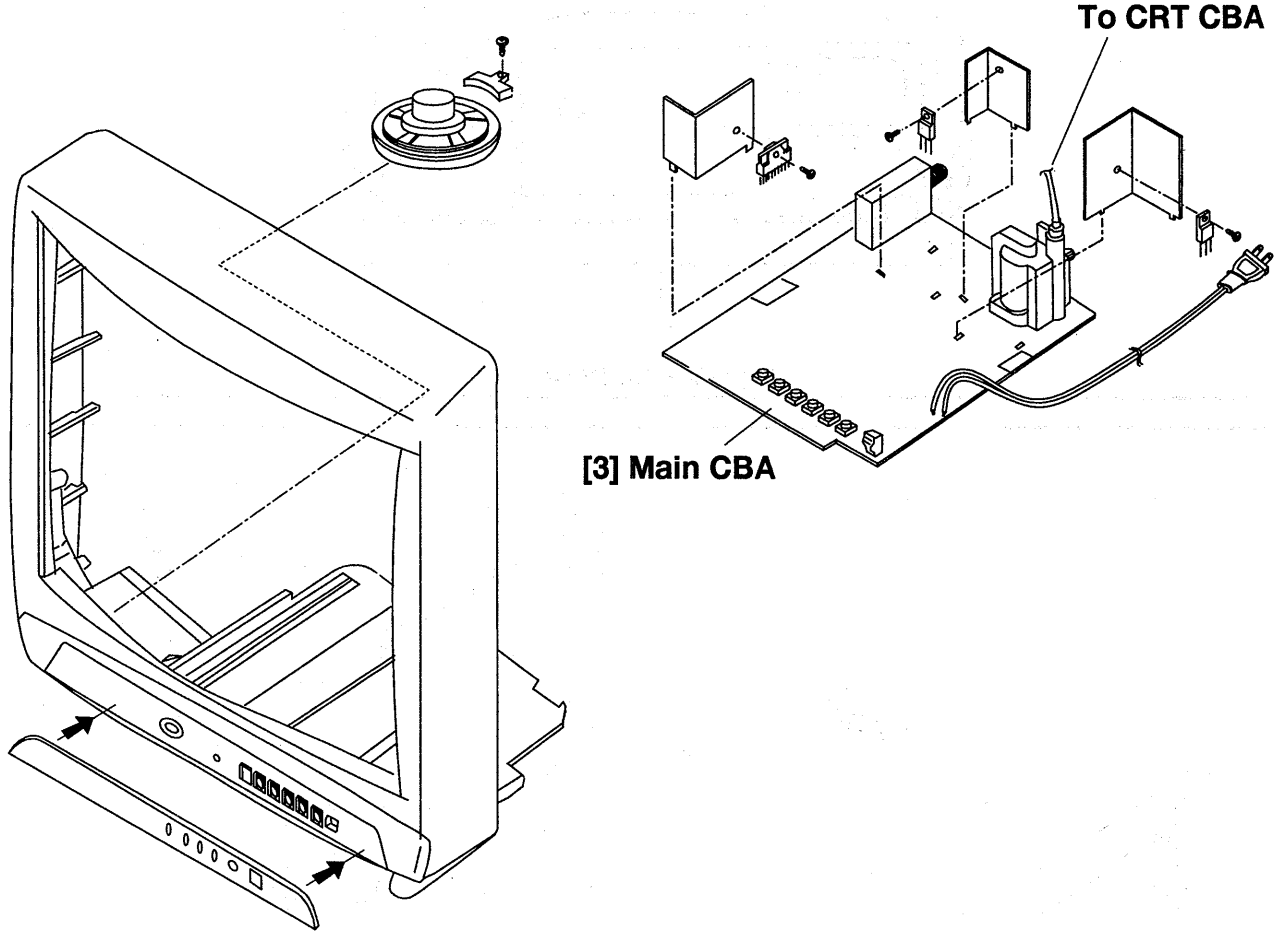


Fig. 3

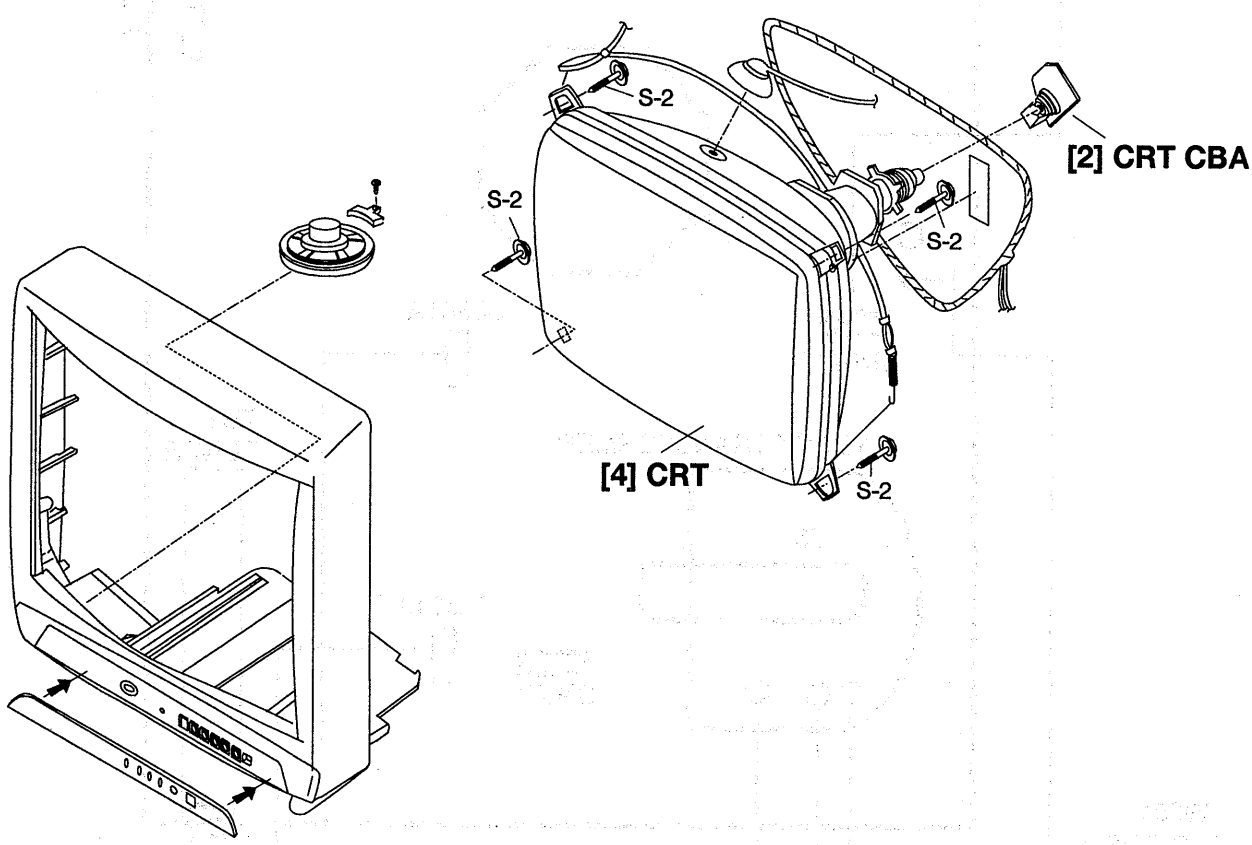


Fig. 4

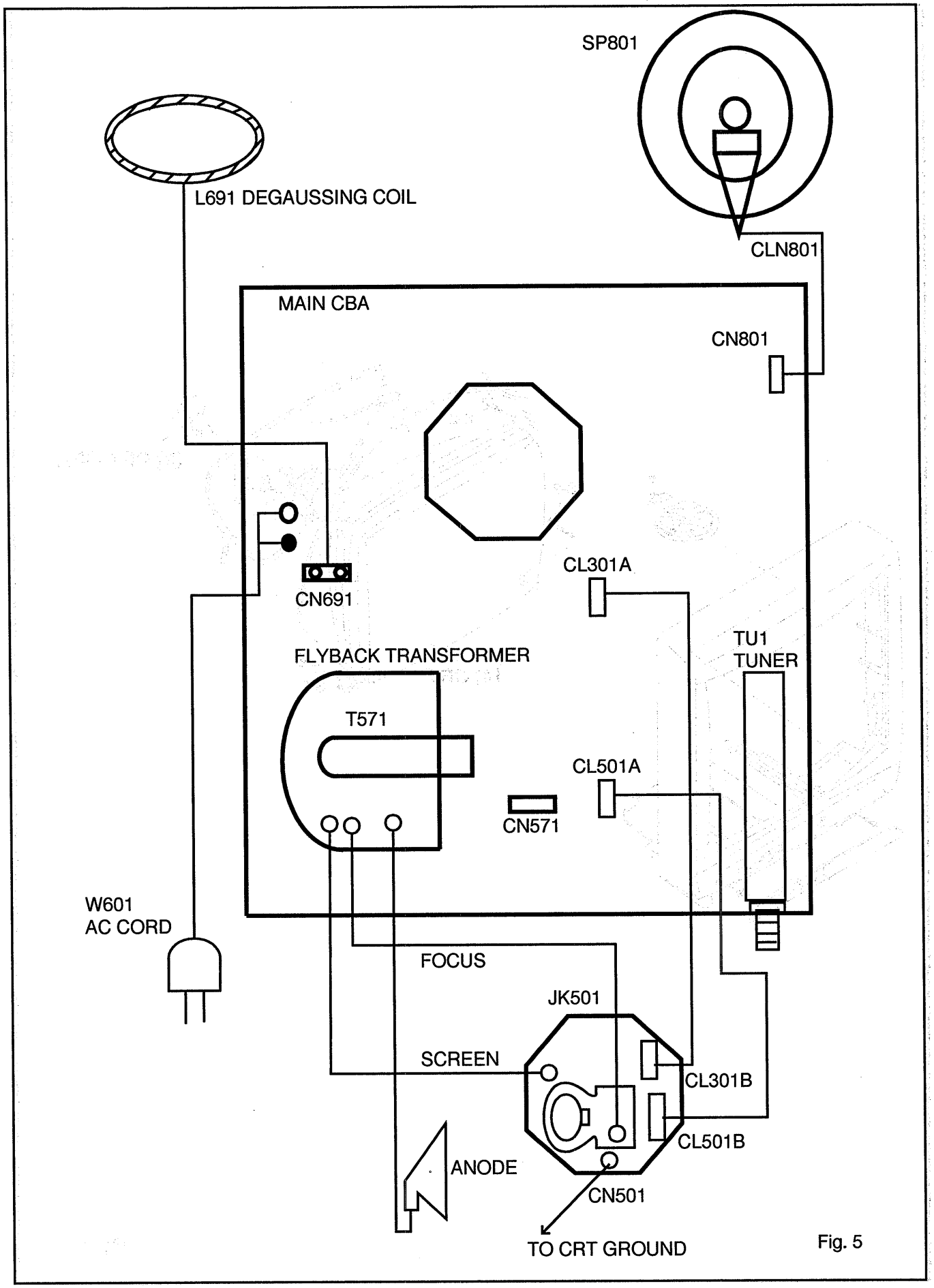

SP801
L691 DEGAUSSING COIL
CLN801
MAIN CBA
CN801
CN691
CL301A
FLYBACK TRANSFORMER
TU1
TUNER
T571
CL501A
CN571
W601
AC CORD
FOCUS
JK501
SCREEN
CL301B
CL501B
ANODE
CN501
TO CRT GROUND

Fig. 5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:
"CBA" is abbreviation for " Circuit Board Assembly".

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts.

It is important to perform these adjustments only after all repairs and replacements have been completed.

Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. AC Milli Voltmeter (RMS)
3. DC Voltmeter
4. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div,
   F-Range: DC~AC-60MHz
5. Frequency Counter
6. Plastic Tip Driver

How to Set Up the Service Mode:

Service Mode:

Press Remote Control Button 2-->7-->1--> and MUTE continuously within 10 second after the Power off.

1. Use the remote control unit.
2. Turn the power on.
3. Turn the power off.
4. Press the 2, 7, 1 and then the MUTE buttons.
5. These step must be done within 10 seconds.

1. DC 108V Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and the unit does not operate correctly.

Test Point	Adjustment Point	Mode	Input
J203 (+108V) J204 (GND)	VR661	---	---
Tape	M. EQ.	Spec.	
---	DC Voltmeter	+108±0.5V DC.	

Note: J203, J204(GND), VR661 --- Main CBA

1. Connect DC Volt Meter to J203 and J204(GND).
2. Adjust VR661 so that the voltage of J203 becomes +108±0.5V DC.

2. AFT Adjustment

Purpose: To operate AFT correctly.

Symptom of Misadjustment: AFT does not work correctly and/or synchronization is faulty.

Test Point	Adjustment Point	Mode	Input
J220 (AFT) J204 (GND)	T301 (VCO)	---	See Direction
Tape	M. EQ.	Spec.	
---	Oscilloscope or DC Volt Meter	+2.0±0.2V DC	

Figure

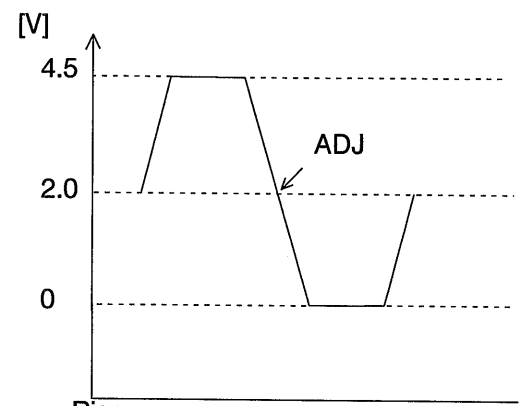


Fig. 1

Note: J220, J204 (GND), T301 --- Main CBA

1. Disconnect the RF input and Set the unit to Channel 4.

2. Reconnect the RF input. Input Color Bar signal.
3. Turn the core of T301 fully counterclockwise.
4. Turn the core of T301 clockwise and find the point where the voltage drops from approximately 4.5V to 0V immediately on the digital meter. (J220)
5. Turn the core of T301 little by little and find the point where +2.0±0.2V DC is obtained between the area mentioned in step 4.

3. AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test Point	Adjustment Point	Mode	Input
J219 (AGC) J204 (GND)	CH ▲ / ▼ buttons (Remote Control Unit)	---	Color Bar 67.25MHz 60dBμV
Tape	M. EQ.	Spec.	
---	Pattern Generator DC Volt Meter	+5.0±0.7VDC	

Notes: J219, J204 (GND) --- Main CBA

Use Remote control Unit.

1. Enter the Service mode. (See Page 4-1) Then press number 2 button on the remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 60dBμV)
3. Press CH ▲ / ▼ buttons so that the voltage of J219 becomes +5.0±0.7V DC.
4. Turn the Power off and on again.

4. Black Level Adjustment

Purpose: Set Sub-bright Level

Symptom of Misadjustment: If Sub-brightness is incorrect, Proper brightness can not be obtained by adjusting the Bright ness Control.

Test Point	Adjustment Point	Mode	Input
J503 (Blue) J501 (GND)	CH ▲ / ▼ buttons (Remote Control Unit)	RF	Black Raster /
Tape	M. EQ.	Spec.	
---	Pattern Generator Oscilloscope	2.2±0.05VDC	

Figure

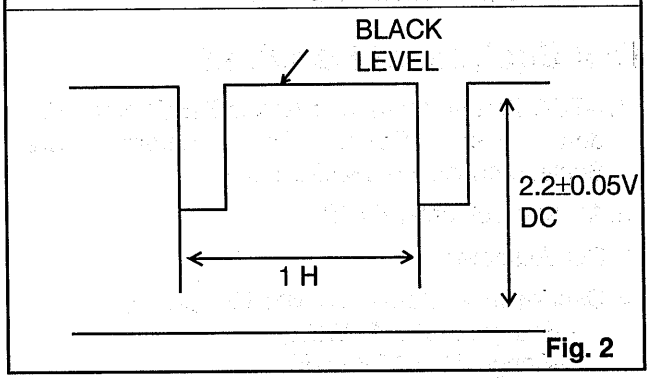


Fig. 2

Note: J503, J501 (GND) --- CRT CBA

1. Enter the Service Mode. (See page 4-1).
2. Receive Black Pattern (W/7.5 IRE Setup)at any channel.
3. Press MENU Button on the remote control.
4. Press CH ▲ / ▼ buttons so that the voltage of J503 (Blue Output) becomes DC 2.2±0.05VDC.
5. Turn the power off and on again.

5. C-Trap Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
J503 (Blue) J501 (GND)	----		Color Bar
Tape	M. EQ.	Spec.	
----	Oscilloscope		

Note: J503, J501 --- CRT CBA

1. Connect Oscilloscope to J503 and J501 (GND) .
2. Enter the Service mode. (See Page 4-1) Receive Color Bar signal from RF Input.

3. Press " 0 " button on the Remote Control Unit and Select C-TRAP Mode. (Press " 0 " button then display will change to C-TRAP and H-ADJ).
4. Press CH ▲ / ▼ buttons on the Remote Control Unit so that the display will change " 0 ", " 1 ", " 2 " and " 3 ". Choose display " 0 ", " 1 ", " 2 " or " 3 " when B-Out (3.58MHz) value becomes minimun on the oscilloscope reading.
5. Turn the power off and on again.

6. V. Size Adjustment

Purpose: To obtain correct vertical width of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	VR551 (V. Size)	Play	Monoscope
Tape	M. EQ.	Spec.	
---	Monochrome	90±5%	

Note: VR551--- Main CBA

1. Operate the unit for at least 20 minutes.
2. Input the Monoscope Pattern.
3. Adjust VR551 so that the monoscope pattern will be 90±5% of display size and the circle is round.

7. V. Shift Adjustment

Purpose: To obtain correct vertical width of screen image.

Symptom of misadjustment: If V. size is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	VR552 (V-POS)	---	Monoscope
Tape	M. EQ.	Spec.	
---	Monochrome	See below	

Note: VR552 --- Main CBA

1. Operate the unit for at least 20 minutes.
2. Input Monochrome Pattern.
3. Adjust VR552 so that the top and bottom of the monochrome pattern will be equal of each other.

8. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test Point	Adjustment Point	Mode	Input
---	Screen-Control	Ext.	Black Raster / White Raster
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below.	
Figure			

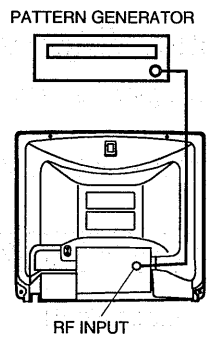


Fig. 3

Note: Screen Control FBT --- Main CBA
F.B.T= Fly Back Transformer
Use the Remote Control Unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input the Black Raster Signal from RF Input.
3. Enter the Service Mode. (See page 4-1)
4. Press " MENU " button. (Display changes BRIGHT, CONTRAST, COLOR, TINT and SHARPNESS cyclically when " MENU " button is pressed). Select BRIGHT and press CH ▲ / ▼ buttons then set in initial value. (Display changes MAX, INITIAL, MIN and INITIAL cyclically when CH ▲ / ▼ buttons are pressed).
5. Follows above procedure to set Contrast, color, tint and sharpness.
6. Press " 8 " button then press " 1 ". The display will momentarily show " CUT OFF R " (R= Red). Now there should be a horizontal line across the center of the picture tube. If needed gradually turn the screen control on the flyback, clockwise until the horizontal line appears. If a pure white line appears then go to step 9 otherwise read on. Adjust the Red Cut off by pressing the CH ▲ / ▼ buttons. Proceed to Step 7 when the Red Cut off adjustment is done.
7. Press the " 2 "button. The display will momentarily show " CUT OFF G " (G=Green). Adjust the Green

Cut off by pressing the CH ▲ / ▼ buttons. Proceed to step 8 when the Green Cut off adjustment is done.

8. Press the " 3 " button. The display will momentarily show " CUT OFF B " (B=Blue). Adjust the Blue cut off by pressing the CH ▲ / ▼ buttons. When done with steps 6, 7 and 8 the holrizontal line should be pure white if not,then attempt the Cut off adjustment again.
9. Press the " 9 " button then the " 1 " button. The display will momentarily show " Drive R " (R=Red). Adjust the Red Drive as need with the CH ▲ / ▼ buttons.
10. Press the " 2 " button then the " 1 " button. The display will momentarily show " Drive B " (B=Blue). Adjust the Blue Drive as need with the CH ▲ / ▼ buttons.

9. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adjustment Point	Mode	Input
Screen	Service Mode No.9		White Raster (APL 100%)
Equipment		Spec.	
Pattern Generator, Color analyzer		See below	
Connections of Equipment			

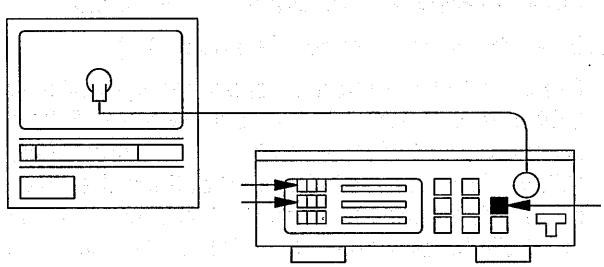


Fig. 4

Reference Notes:

1. Operate the unit more than 20 minutes.
2. Face the unit to east. Degauss the CRT using Degaussing Coil.
3. Input the White Raster (APL 100%).
4. Set the color analyzer to the CHROMA mode and after zero point calibration, bring the optical receptor to the center on the tube surface (CRT).
5. Enter the Service Mode. then Press No. 9 button on the Remote Control Unit.
6. Press Red button for Red adjustment. Press Blue button for Blue adjustment.
7. In each color mode, Press CH UP/DOWN button to adjust the values of color.
8. Adjusting Red and Blue color so that the tempreture becomes 9200K (x : 286 / y : 294) ±4%.
9. At this time, Re-check that Holizontal line is white. If not, Re-adjust Cut-off Adjustment until the Holizontal Line becomes pure white.
10. Turn off and on again to return to normal mode. Receive APL 100% white signal and Check Chroma temperatures become 9200K (x : 286 / y : 294) ±4%.

Note: Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

10. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test Point	Adjustment Point	Mode	Input
---	CH ▲ / ▼ buttons	EXT	IQW
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below	
Figure			

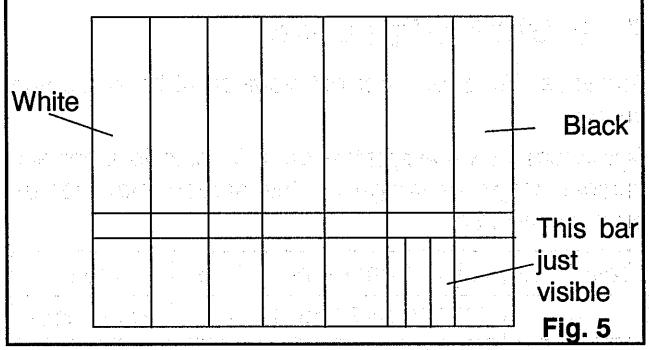


Fig. 5

Note: IQW Setup level --- 10 IRE

1. Enter the Service Mode. (See page 7-1) Then input IQW signal from RF Input.
2. Press MENU button. (Display changes BRIGHT, CONTRAST, COLOR, and TINT cyclically when MENU button is pressed). Select BRIGHT and press CH ▲ / ▼ buttons so that the bar is just visible (See above figure).
3. Turn the power off and on again.

11. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test Point	Adjustment Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	

Note: Focus VR (FBT) --- Main CBA

FBT= Fly Back Transformer

1. Operate the unit more than 30 minutes
2. Face the unit to the East and Degauss the CRT using Degaussing Coil.
3. Input the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain clear picture.

The following 2 adjustments normally are not attempted in the field. Only when replacing the CRT then adjust as a preparation.

12. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	Red Color
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	
Figure			

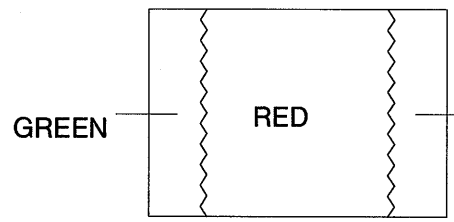


Fig. 6

1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 7)
5. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 6,7)
6. Slowly push the Deflection Yoke toward bell of CRT and set it where a uniform red field is obtained.
7. Tighten the clamp screw on the Deflection Yoke.

13. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adjustment Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	M. EQ.	Spec.	
---	Pattern Generator	See below.	
Figures			

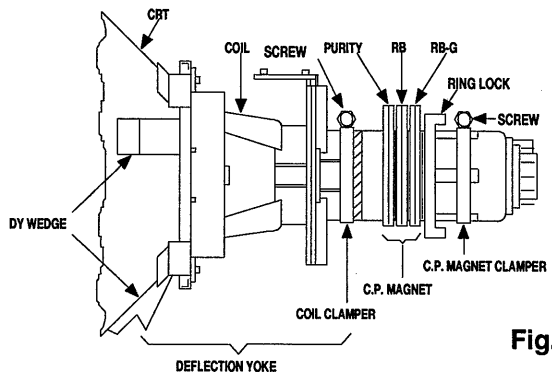


Fig. 7

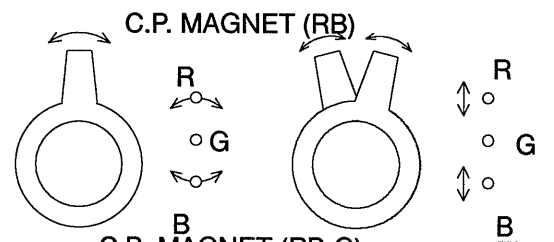


Fig. 8

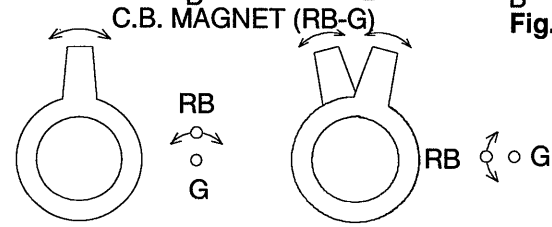
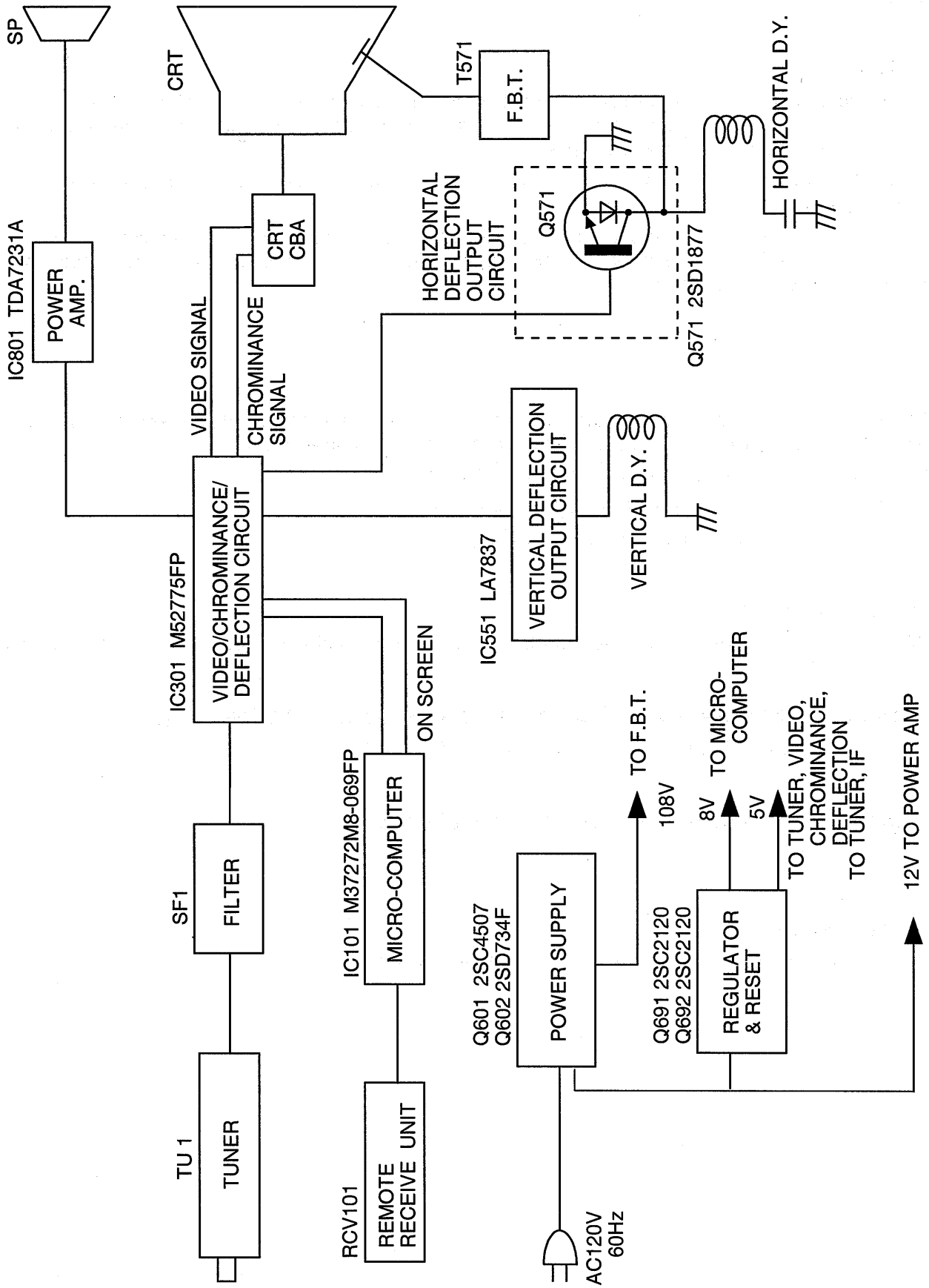


Fig. 9

1. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 8)
2. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 9)
3. Fix the C.P. Magnets by tightening the Ring Lock.
4. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
5. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

BLOCK DIAGRAM



SCHEMATIC DIAGRAM / CBA'S AND TEST POINTS

Standard Notes

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characreristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Funai Electric Company. Funai assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

* Broken Line: ----------

Notes:

① Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.

② All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).

③ Resistor wattages are 1/5W or 1/6W unless otherwise specified.

④ All capacitance values are indicated in μF ($P=10^{-6}\mu F$).

Note of Capacitors:

ML --- Mylar Cap. PP --- Metalized Film Cap. SC --- Semiconductor Cap. L --- Low Leakage type

Temperature Characteristics of Capacitors are noted with the following:

B --- ±10% CH --- 0±60ppm/°C SL --- +350~-1000ppm/°C

Tolerance of Capacitors are noted with the following:

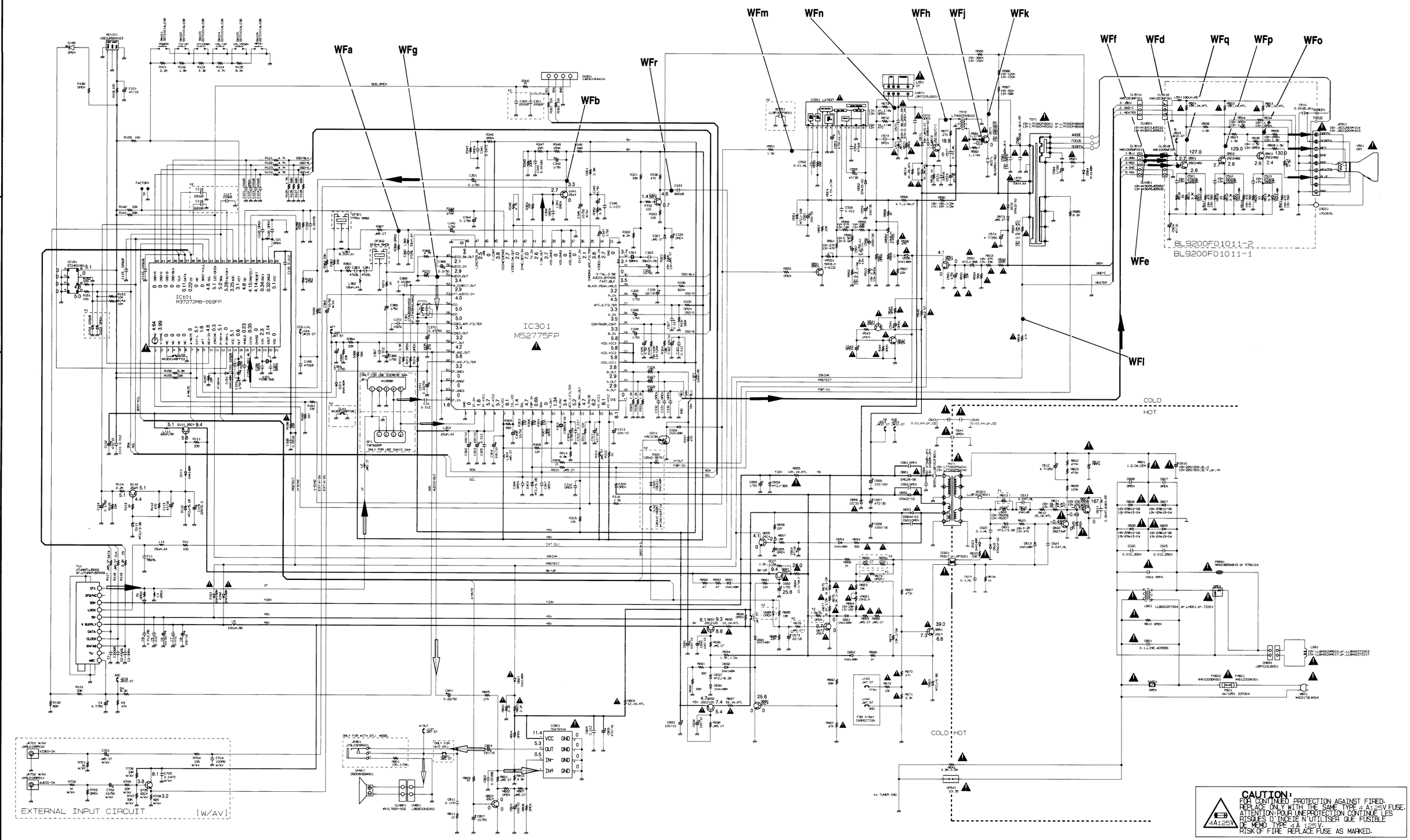
Z --- +80~-20%

Note of Resistors:

CEM --- Cement Res. MTL --- Metal Res. F --- Fuse Res.

Schematic Diagram Main / CRT

RF / IF SIGNAL　　VIDEO SIGNAL　　AUDIO SIGNAL



WARNING: Replacement parts with special safety characteristics are identified by a ⚠ [exclamation mark within equilateral triangle] showing on the schematic diagram. Replace these critical components with recommended replacement parts only. Do not degrade the safety of this appliance through improper servicing. Service personnel should make leakage-current or resistance measurements to determine that exposed bare parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTE:
1. ALL RESISTOR VALUES ARE IN OHMS. K=1000. M=1000K.
2. ALL CAPACITOR VALUES ARE IN uF UNLESS OTHERWISE NOTED. pF=uuF.
3. NO INDICATED 2SC* ARE KTC3198[GR]. KTC3199[GR]. 2SC3331[T]. 2SC3331[U]. 2SC1815[GR].
4. NO INDICATED 2SA* ARE KTA1266[GR]. KTA1267[GR]. 2SA1318[T]. 2SA1318[U]. 2SA1015[GR].
5. IN CASE OF NO INDICATION OF WATTAGE RESISTORS ARE 1/4W OR 1/6W.
6. IN CASE OF DIODE IS INDICATED WITH 1N4148M. USEABLE 1SS133. 1SS254. 1SS176 OR GMB01BT.

NOTE2:
*1 [ ] FOR BL9200F01011
*2 [ ] FOR BL9200F01012

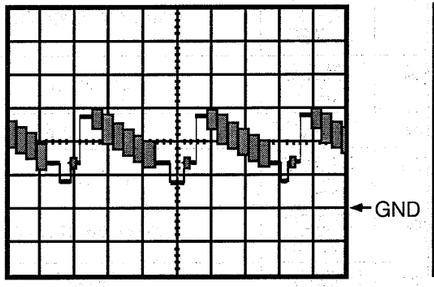
WAVEFORMS

WFa ~ WFq = Waveforms to be observed at Waveform check points. (Shown in Schematic Diagram.)

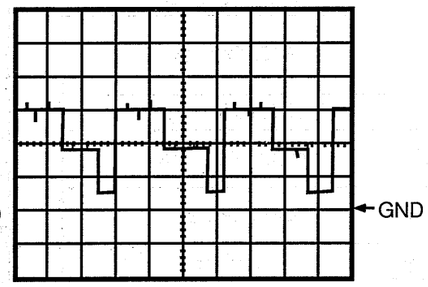
Input: NTSC Color Bar Signal (with 1KHz Audio Signal)

INITIAL POSITION: Unplug unit from AC outlet for at least 5 minutes. reconnect to AC outlet and then turn power on.

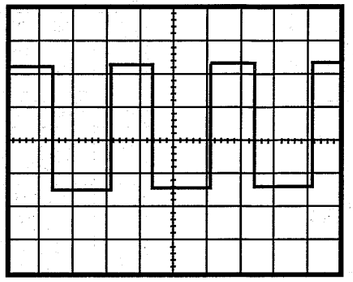
(Brightness---Center Color---Center Tint --- Center Contrast---Approx 70%)



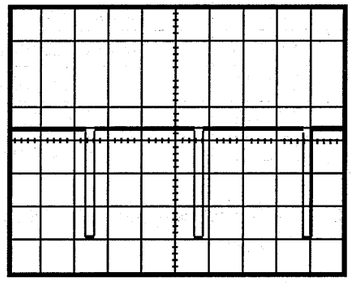
WFa 1DIV: 0.5V 20µsec



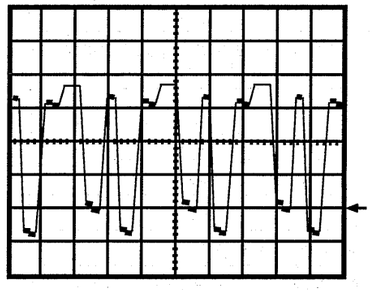
WFe 1DIV: 2V 20µsec



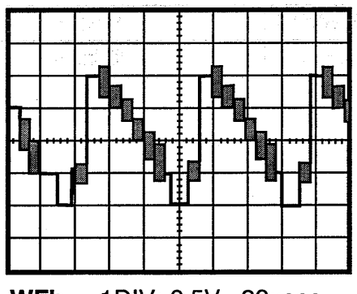
WFi 1DIV: 0.2V 20µsec



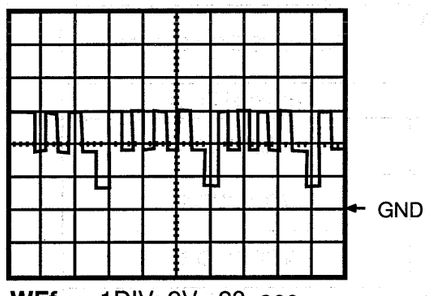
WFm 1DIV: 2V 5msec



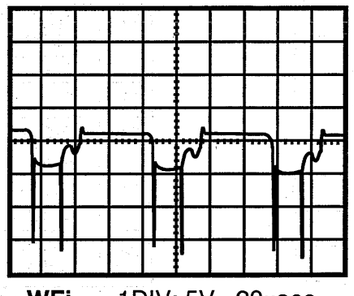
WFq 1DIV: 20V 20µsec



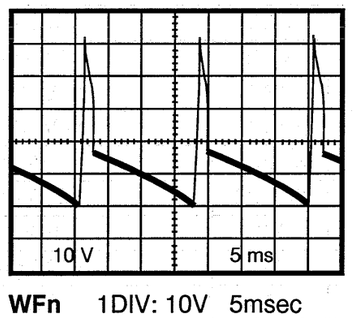
WFb 1DIV: 0.5V 20µsec



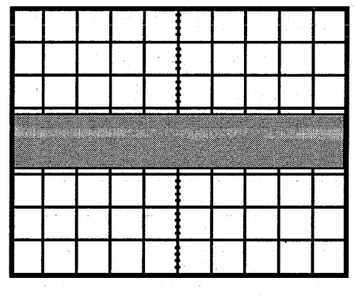
WFf 1DIV: 2V 20µsec



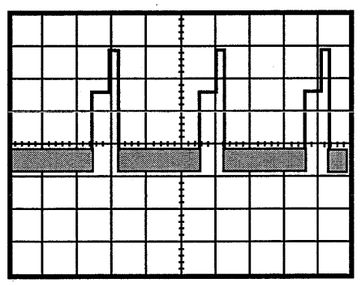
WFj 1DIV: 5V 20µsec



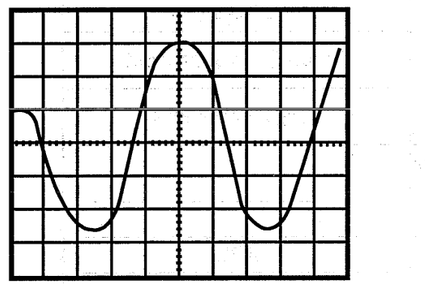
WFn 1DIV: 10V 5msec



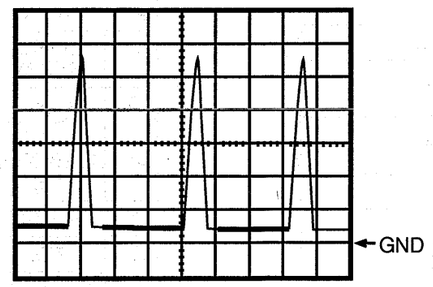
WFr 1DIV: 0.2V 20µsec



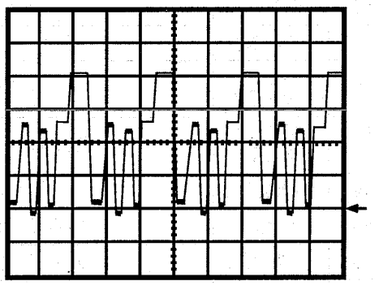
WFc 1DIV: 2V 20µsec



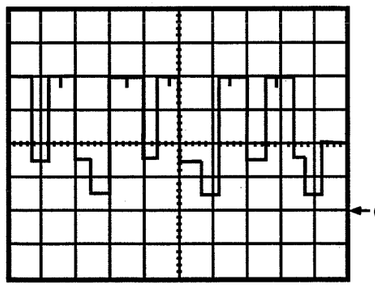
WFg 1DIV: 0.2V 20msec



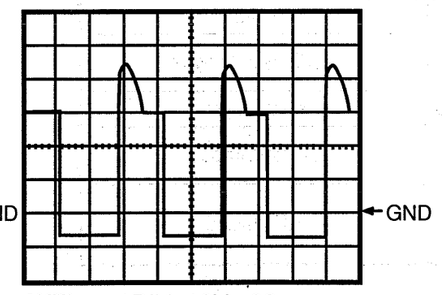
WFk 1DIV: 200V 20µsec



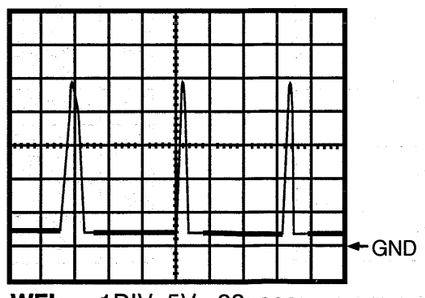
WFo 1DIV: 20V 20µsec



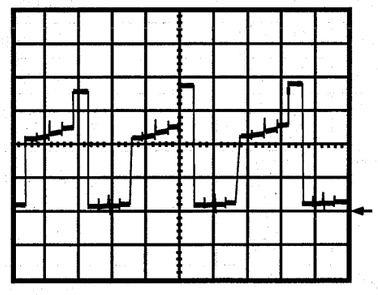
WFd 1DIV: 2V 20µsec



WFh 1DIV: 10V 20µsec



WFl 1DIV: 5V 20µsec



WFp 1DIV: 20V 20µsec

IC PIN FUNCTIONS

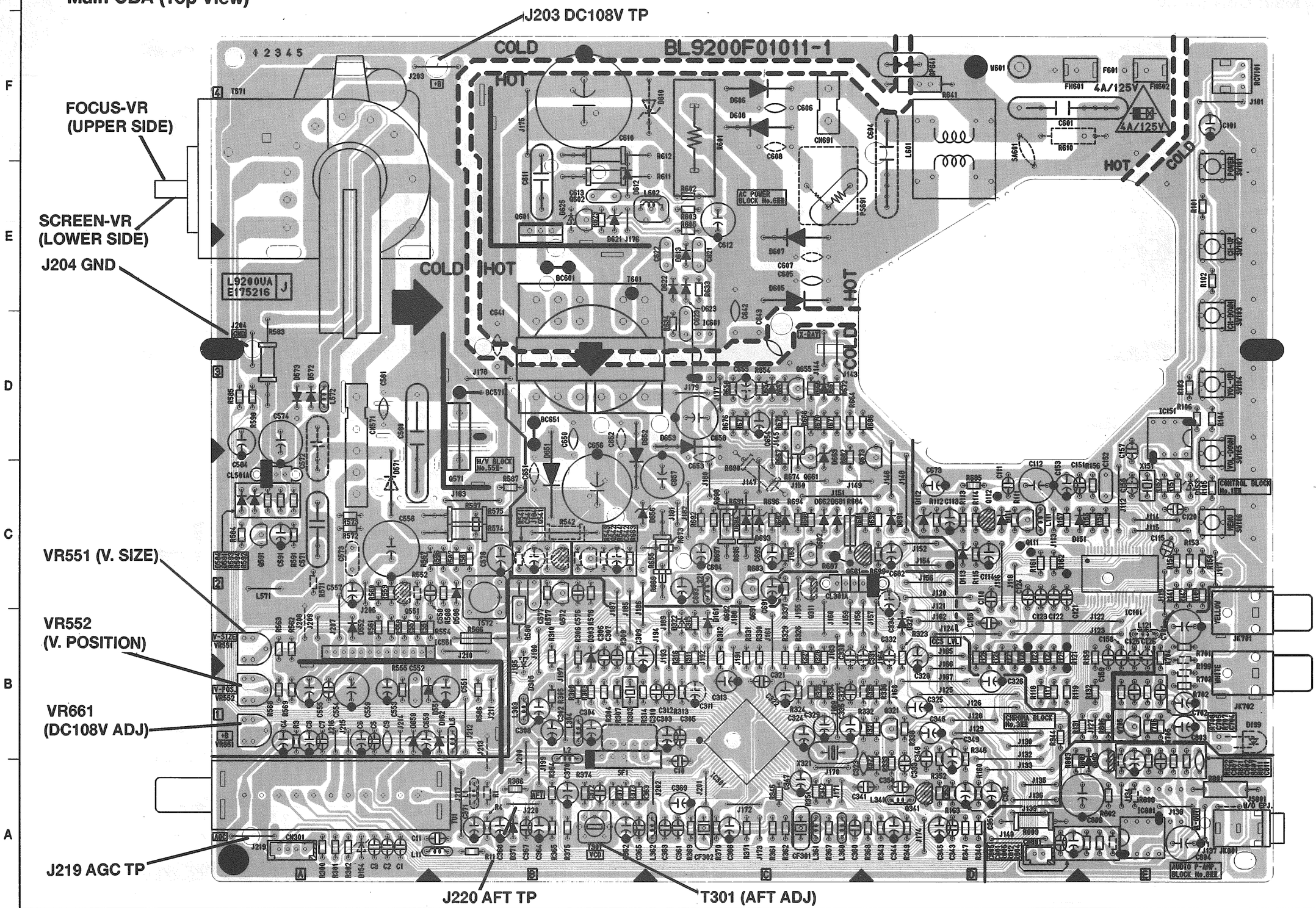
IC101 (TV Micro Computer)

Pin No.	Signal Name	Function
1	H SYNC	Input For Horizontal Synchronize Signa
2	V SYNC	Input For Vertical Synchronize Signal
3		Not Used
4		Not Used
5		Not Used
6		Not Used
7	A-MUTE	Aidio Mute Output
8	EXT-L	Output for External input sellect
9	AFT	AFT Input
10	RCV-IN	Input For Remote Control
11	15K-CHK	Detection for Power Failure
12	P-ON-H	Output for P-ON-H
13	P-ON-L	Output for P-ON-L
14	VCC	+5V
15	HLF	HLF
16	VHOLD	VHOLD
17	CVIN	Input for Video Signal
18	CNVSS	GND
19	XIN	Input for Oscillator
20	XOUT	IOutput for Oscillator
21	VSS	GND
22	VDC	ALL+5V
23	OSC 2	Oscillation 2
24	OSC 1	Oscillation 1
25	RESET	RESET
26	PROTECT	Power Supply Protection
27	SD	Detection for SD Signal
28	KEY	Key Input (Main)
29	AGC	AGC Voltage
30	FACTORY	Factort Key Input
31	SDA	12C-BUS Data
32	12C-OPEN	White Balance Adjustment Judgement
33	SCL	12C-BUS CLK
34	SPOT-KILL	Spot Countermeasure
35		Not Used
36	CS	Output for PLL CS
37	DATA	Output for PLL DATA
38	CLK	Output for PLL Clock
39	OSD-BLK	Picture Shut Down Output
40	OSD-B	Blue Output
41	OSD-G	Green Output
42	OSD-R	Red Output

IC301 (IF/Video/ChrominanceDeflection)

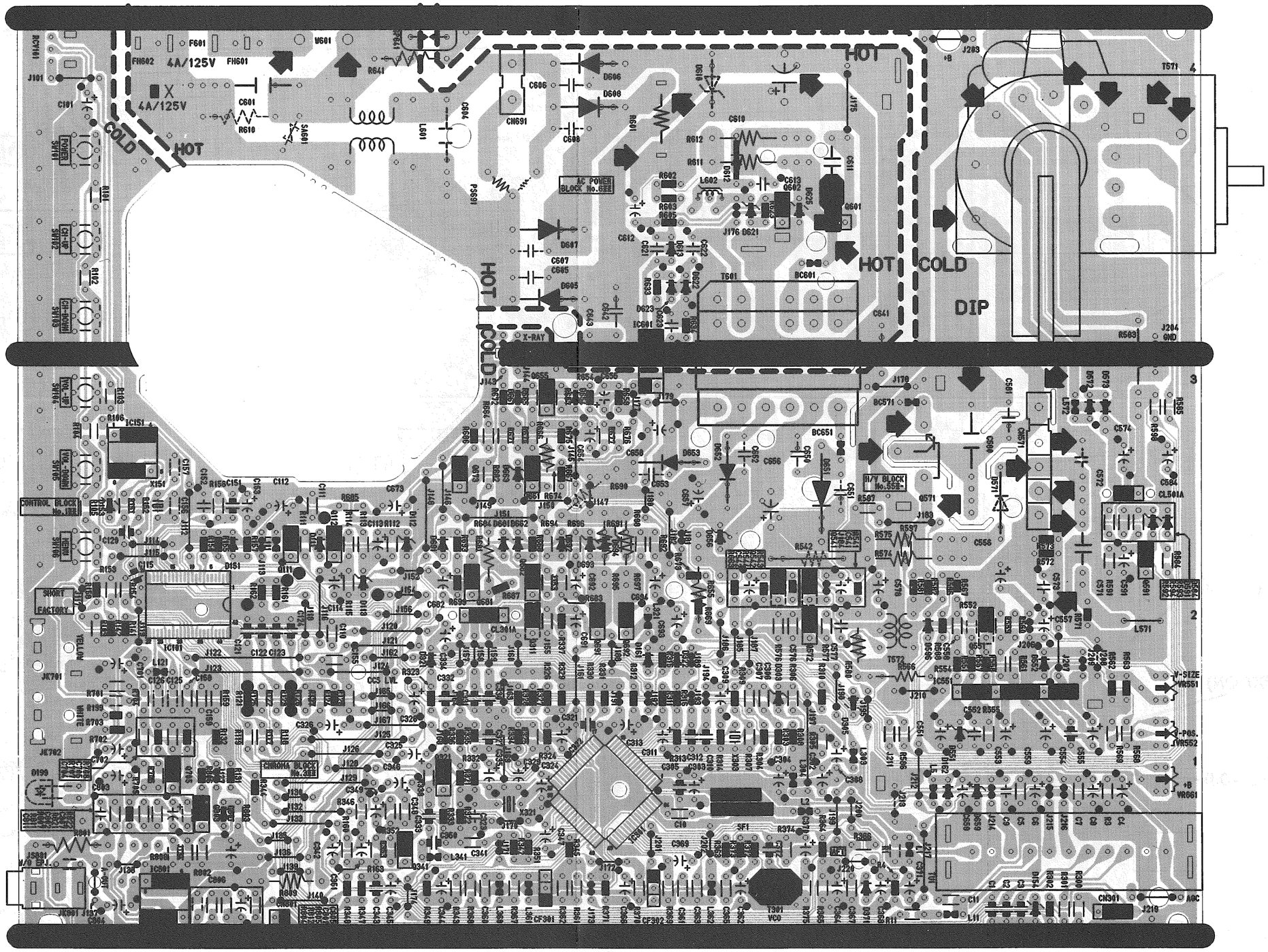
Pin No.	Signal Name	Function
1	GND	GND
2	IF IN	IF INput
3	IF-VCC1	IF-VCC 1
4	IF-VCC2	IF VCC 2
5	HL VCC	HI VCC
6	IIL VCC	IIL VCC
7	SCL	SCL
8	FBP- IN	FBP Input
9	SDA	SDA
10	H-OUT	H-Output
11	H-OSC	H-Oscillation
12	AFC FILTER	AFC Filter
13	FBP IN OUT	FBP In/Out
14	V-PULSE	V-Pulse
15	HI-VCC1	HI-VCC 1
16	HI-VCC2	HI-VCC 2
17	GND	GND
18	R-OUT	R Output
19	G-OUT	G Output
20	B OUT	B Output
21	VCD-VCC1	VCD VCC 3
22	VCD-VCC2	VCD VCC 2
23	VCD-VCC3	VCD VCC 3
24	B-IN	B Input
25	CONTRAST CONT	B-Y Output
26	G-IN	OSD Blue Input
27	AFC-2	OSD Green Input
28	R-IN	OSD Red Input
29	BLACK PEAK HOLD	TINT Control
30	FAST BLK	Fast Blanking Input
31	AUDIO BYPASS	Chroma Apc Filter
32	X-TAL 3.58	Chroma Osc
33	GND	AC Filter
34	VIDEO SW IN	Black Hold
35	CHROMA APC FILTER	Filter for CHROMA APC
36	EXT-IN	External Input
37	VCD GND 1	VCD GND 3
38	VCD GND 2	VCD GND 2
39	VCD GND 3	VCD GND 3
40	Y-SW OUT	Y-SW Output
41	IV-IN	IV-Input
42	SYNC SEP IN	SYNC Separation Input
43	VIDEO SW OUT	Video SW Output
44	COINCIDENCE	
45	r-CONT	
46	ABL	ABL
47	LIMITER-IN	Limitter Input
48	GND	GND
49	AUDIO SW OUT	Audio SW Output
50	AUDIO IN	Audio Input
51	AUDIO OUT	Audio Output
52	FM DIRECT OUT	RF Output
53	EXT AUDIO IN	External Audio In
54	VCO	VCO
55	VCO	VCO
56	VIDEO APC FILTER	Filter for Video APC
57	VIDEO OUT	Video Out
58	AFT OUT	AFT Out
59	RF AGC OUT	RF AGC Out
60	IF AGC FILTER	Filter for IF AGC
61	IF GND 1	GND 1
62	IF GND 2	GND 2
63	IF GND 3	GND 3
64	IF IN	IF Input

Main CBA (Top View)



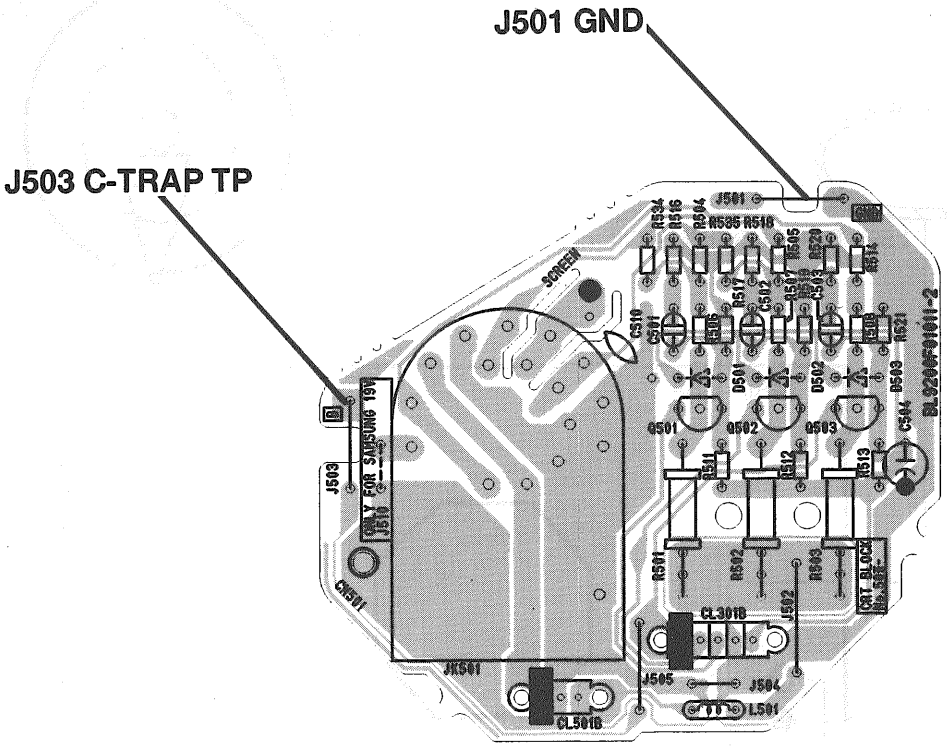
(BL9200F01011-1)

Main CBA (Bottom View)

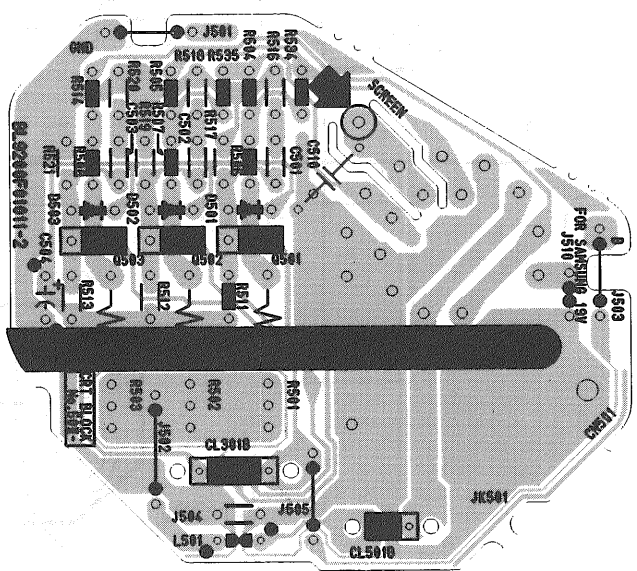


(BL9200F01011-1)

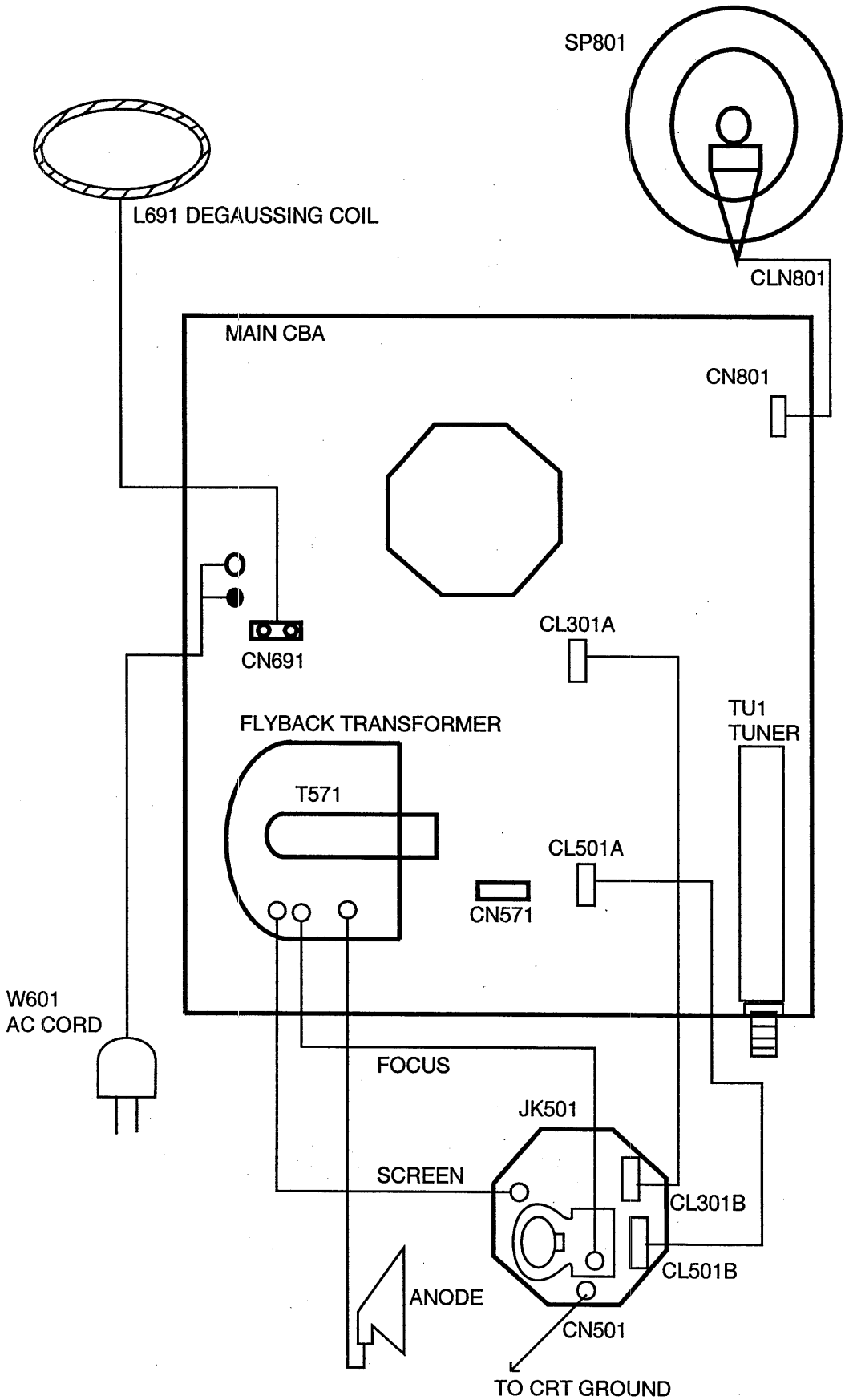
CRT CBA (Top View)



CRT CBA (Bottom View)

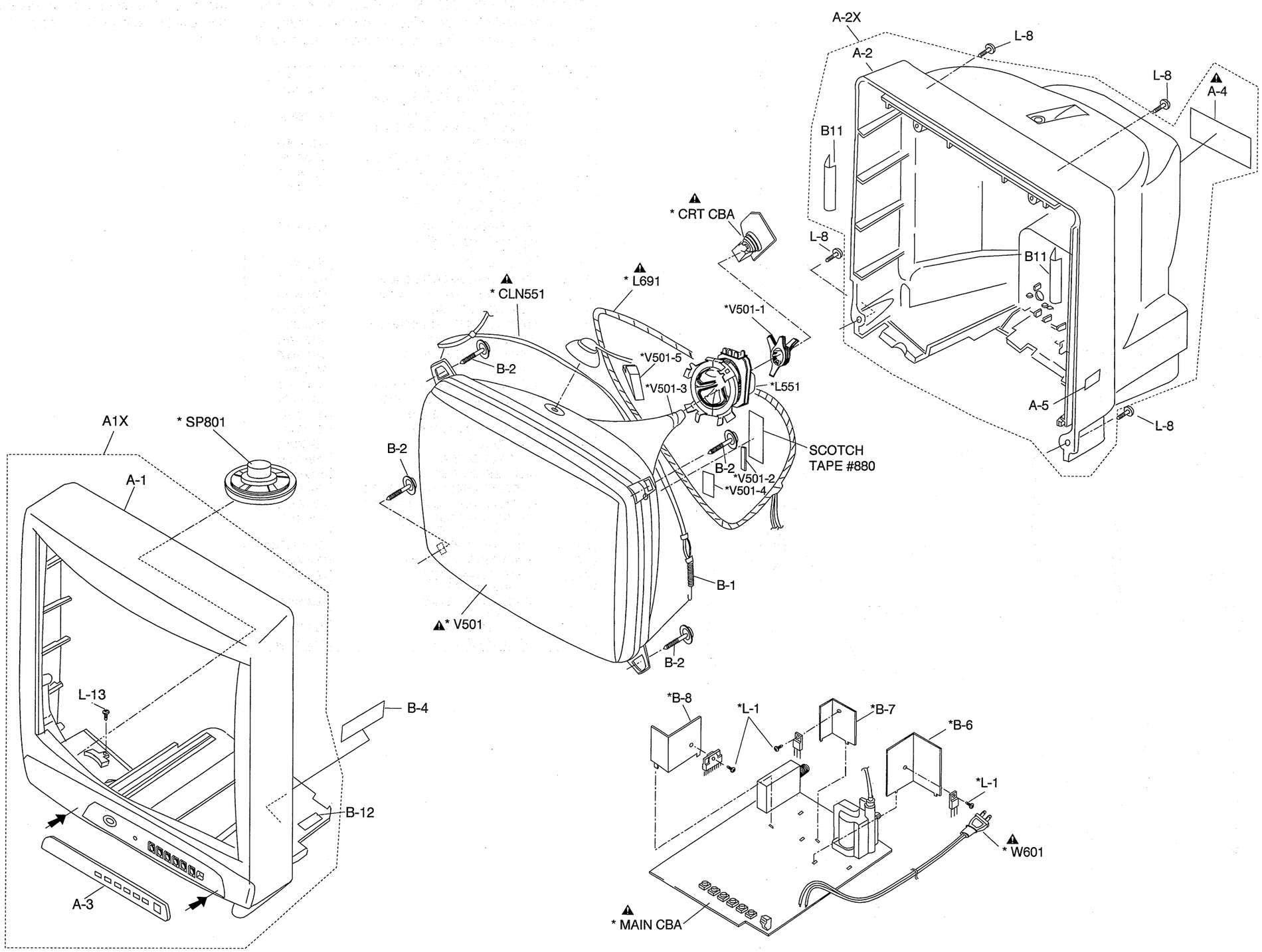


WIRING DIAGRAM

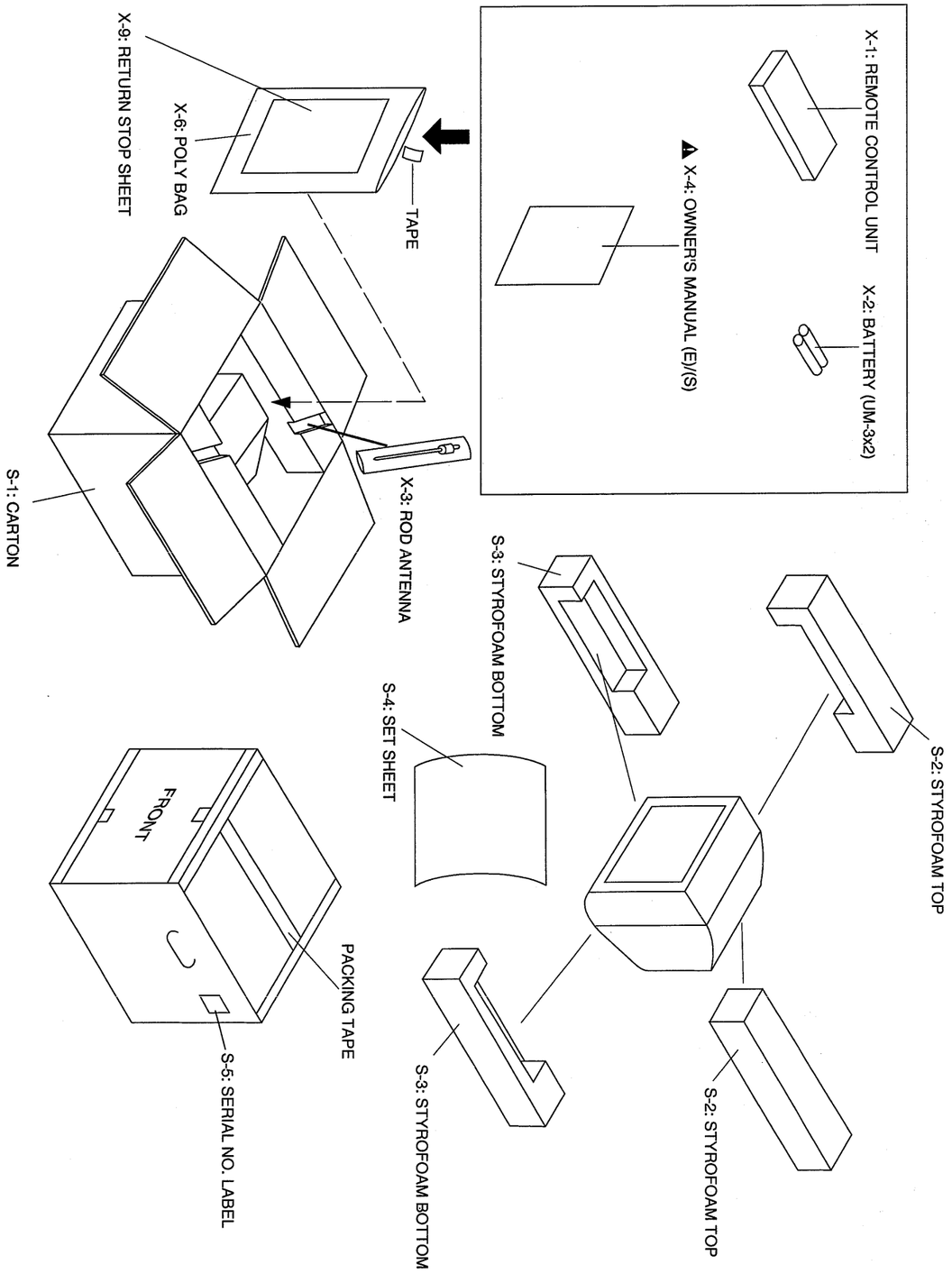


CABINET EXPLODED VIEW

*Marked parts see the Electrical Parts List



PACKING EXPLODED VIEW



CABINET PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Ref. No.	Description	Part No.
A1X	FRONT CABINET ASSEMBLY (Included A-1, A-3) For MODEL ST4813	0EM200847
	FRONT CABINET ASSEMBLY (Included A-1, A-3) For MODEL F4813T	0EM200854
A-1	FRONT CABINET	0EM100899
A-3	CONTROL PLATE For MODEL ST4813	0EM301160
A-3	CONTROL PLATE For MODEL F4813T	0EM301162
A2X	REAR CABINET ASSEMBLY (Included A-2, A-4, A-5 and B-11) For MODEL ST4813	0EM200848
	REAR CABINET ASSEMBLY (Included A-2, A-4, A-5 and B-11) For MODEL F4813T	0EM200855
A-2	REAR CABINET	0EM200843
A-4 ⚠	RATING LABEL For MODEL ST4813	0EM404276
A-4 ⚠	RATING LABEL For M ODEL F4813T	0EM404303
A-5	TELEPHONE NO. LABEL	0EM402173A
B-1	TENSION SPRING B0080B0:EM40808	26WH006
B-2	CRT MOUNTING SCREW	0EM403023
B-4	SERVICE CAUTION LABEL(A)	0EM401369
B-11	CLOTH B0071V9:TS7346	24WE420
L- 8	SCREW P-TIGHT 4X18 BIND HEAD +	GBMP4180
L- 13	SCREW P-TIGHT 3X12 BIND HEAD+	GBMP3120
S-1	CARTON For MODEL ST4813	0EM404277
S-1	CARTON For MODEL F4813T	0EM404288
S-2	STYRFOAM TOP	0EM000216
S-3	STYRFOAM BOTTOM	0EM000217
S-4	SET SHEET :800X1500	0EM402369
S-5	SERIAL NO. LABEL For MODEL ST4813	0EM404278
S-5	SERIAL NO. LABEL For MODEL F4813T	0EM404289
X-1	REMOTE CONTROL UNIT 130/ERC001/N0238UD	N0238UD
X-2	DRY BATTERY R6P UM3	XB0M451GH001
X-3	ROD ANTENNA :NTSC W/COO	0EMN00673
X-4 ⚠	OWNER'S MANUAL(E)/(S) For MODEL ST4813	0EMN01342
X-4 ⚠	OWNER'S MANUAL(E)/(S) For MODEL F4813T	0EMN01344
X-6	POLYETHYLENE BAG	Z325350
X-9	RETURN STOP SHEET	0VM408869

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that not assigned part numbers (----------) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Main (MMA) CBA

Ref. No.	Description	Part No.
	Main CBA (MMA-225)	0ESA02473
	Consists of the following	
	Main CBA	----------
	CRT CBA	----------

Main CBA

Ref. No.	Description	Part No.
	CAPACITORS	
C 1	CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 2	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C 4	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C 5	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 6	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 7	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 8	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 9	CERAMIC CAP. F Z 0.01μF/50V	CCD1JZS0F103
C 10	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 11	CHIP CERAMIC CAP. SL J 56pF/50V	CHE1JJBSL560
C 101	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 110	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 111	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 112	ELECTROLYTIC CAP. 470μF/10V M	CE1AMZPDL471
C 113	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 114	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 115	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 116	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 117	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 118	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 119	ELECTROLYTIC CAP. 220μF/10V M	CE1AMASDL221
C 120	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 121	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 123	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 124	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C 151	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 152	*MYLAR CAP. 0.001μF/50V J or	CMA1JJP00102
	MYLAR CAP. 0.001μF/50V K or	2250102
	STZCKED METALLIZED FILM CAP. 0.01μF/50V J	125U103
C 153	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 155	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 158	CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
C 159	CHIP CERAMIC CAP. B K 4700pF/50V	CHE1JKB0B472
C 300	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 301	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 302	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 303	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 304	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 305	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 308	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 309	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 310	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 311	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 313	ELECTROLYTIC CAP. 220μF/10V M	CE1AMASDL221
C 321	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 322	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 323	CERAMIC CAP. CH J 39pF/50V	CCD1JJSCH390
C 324	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 325	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 326	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 327	CERAMIC CAP.(AX) Y K 0.01μF/16V	CDA1CKT0Y103
C 328	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 329	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 333	CERAMIC CAP.(AX) B K 820pF/50V	CDA1JKT0B821
C 335	ELECTROLYTIC CAP. 22μF/16V M	CE1CMASDL220
C 341	CHIP CERAMIC CAP. F Z 0.047μF/50V	CHE1JZB0F473
C 342	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 343	CERAMIC CAP.(AX) X K 1800pF/16V	CDA1CKT0X182
C 344	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 345	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 347	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 348	CHIP CERAMIC CAP. B K 0.015μF/50V	CHE1JKB0B153
C 349	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 351	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 360	CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJBSL270
C 361	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBSL470
C 363	CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBSL470
C 364	ELECTROLYTIC CAP. 0.1μF/50V M	CE1JMASDL0R1
C 365	CHIP CERAMIC CAP. B K 3900pF/50V	CHE1JKB0B392
C 366	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 367	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 368	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 369	ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C 370	ELECTROLYTIC CAP. 0.47μF/50V M	CE1JMASDLR47
C 371	ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASDLR22
C 372	CERAMIC CAP.(AX) SL J 10pF/50V	CCA1JJTSL100
C 551	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C 552	MYLAR CAP. 0.01μF/50V J or	CMA1JJP00103
	MYLAR CAP. 0.01μF/50V K	2250103
C 553	ELECTROLYTIC CAP. 1μF/50V M LL H7 or	CA1J1R0SP018
	ELECTROLYTIC CAP. 1μF/50V M LL H7	CE1JMASHL010
C 554	CERAMIC CAP.(AX) B K 470pF/50V	CCA1JKT0B471
C 555	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C 556	ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102
C 557	ELECTROLYTIC CAP. 1μF/50V M LL H7 or	CA1J1R0SP018
	ELECTROLYTIC CAP. 1μF/50V M LL H7	CE1JMASHL010
C 558	CERAMIC CAP.(AX) F Z 0.01μF/25V	CDA1EZT0F103
C 559	ELECTROLYTIC CAP. 100μF/35V M	CE1GMASDL101
C 571 ⚠	METALLIZED FILM CAP. 0.33μF/200V J or	CT2D334F7001
	METALLIZED FILM CAP. 0.33μF/200V J or	1220509
	METALLIZED FILM CAP. 0.33μF/250V J	CT2E334EB001

*Mylar is a registered trademark of E. I. Du Pont de Nemours and Company.

Ref. No.	Description	Part No.
C 574 ⚠	ELECTROLYTIC CAP. 4.7μF/250V M or	CE2EMZPTL4R7
	ELECTROLYTIC CAP. 4.7μF/250V	CE2EMZPDL4R7
C 576	CHIP CERAMIC CAP. SL J 330pF/50V	CHE1JJBSL331
C 577	MYLAR CAP. 0.01μF/50V J or	CMA1JJP00103
	MYLAR CAP. 0.01μF/50V K	2250103
C 578	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C 580 ⚠	METALLIZED FILM CAP. 0.0068μF/1.6KV J or	1220498
	METALLIZED FILM CAP. 0.0068μF/1.6KV J or	CT3C682F7002
	METALLIZED FILM CAP. 0.0068μF/1.6KV J	CT3C682EB001
C 584	ELECTROLYTIC CAP. 1μF/160V M or	CE2CMASTL1R0
	ELECTROLYTIC CAP. 1μF/160V	CE2CMASDL010
C 591 ⚠	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 601 ⚠	METALLIZED FILM CAP. 0.1μF/250V M	CT2E104DC009
C 605	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZD0F103
	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C 606	CERAMIC CAP. F Z 0.01μF/500V or	CCD2JZD0F103
	CERAMIC CAP. 0.01μF/AC250V	CCD2EZA0F103
C 610 ⚠	ELECTROLYTIC CAP. 220μF/200V M or	CE2DMZPTL221
	ELECTROLYTIC CAP. 220μF/200V SL F	CA2D221S6008
C 611	P.P. CAPACITOR 0.0047μF/630V J or	CBP2KJD00472
	P.P. CAPACITOR 0.0047μF/630V J	CT2K472KF011
C 612	ELECTROLYTIC CAP. 4.7μF/250V M or	CE2EMZPTL4R7
	ELECTROLYTIC CAP. 4.7μF/250V	CE2EMZPDL4R7
C 613	MYLAR CAP. 0.047μF/50V J or	CMA1JJP00473
	MYLAR CAP. 0.047μF/50V K or	2250473
	STACKED METALLIZED FILM CAP. 0.047μF/50V J	125U473
C 621	MYLAR CAP. 0.047μF/50V J or	CMA1JJP00473
	MYLAR CAP. 0.047μF/50V K or	2250473
	STACKED METALLIZED FILM CAP. 0.047μF/50V J	125U473
C 622	MYLAR CAP. 0.1μF/50V J or	CMA1JJP00104
	MYLAR CAP. 0.1μF/50V K or	2250104
	STACKED METALLIZED FILM CAP. 0.1μF/50V J	125U104
C 623	MYLAR CAP. 0.1μF/50V J or	CMA1JJP00104
	MYLAR CAP. 0.1μF/50V K or	2250104
	STACKED METALLIZED FILM CAP. 0.1μF/50V J	125U104
C 642 ⚠	CERAMIC CAP. 0.01μF F CS or	CCG2HMN0F103
	SAFETY CAP. F M 0.01μF/250V	CCG2EMP0F103
C 643 ⚠	CERAMIC CAP. 0.01μF F CS or	CCG2HMN0F103
	SAFETY CAP. F M 0.01μF/250V	CCG2EMP0F103
C 650	CERAMIC CAP. 220pF/2kV or	CA3D221KG004
	CERAMIC CAP. BN J 220pF/2kV	CCD3DKA0B221
C 654	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 656	ELECTROLYTIC CAP. 100μF/160V M or	CE2CMZPTL101
	ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101
C 657	ELECTROLYTIC CAP. 470μF/35V M	CE1GMZPDL471
C 658	ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPDL102
C 659	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 673	ELECTROLYTIC CAP. 22μF/16V M	CE1CMASDL220
C 682	ELECTROLYTIC CAP. 1μF/50V M	CE1JMASDL010
C 691	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 692	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 693	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 694	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 801	ELECTROLYTIC CAP. 0.22μF/50V M	CE1JMASDLR22
C 802	CHIP CERAMIC CAP. B K 3900pF/50V	CHE1JKB0B392
C 803	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C 804	ELECTROLYTIC CAP. 330μF/16V M	CE1CMASDL331
C 805	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHE1JZB0F103
C 806	ELECTROLYTIC CAP. 470μF/16V M	CE1CMZPDL471
C 807	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C 811	SEMICONDUCTOR CAP. YR K 0.1μF/25V	CDA1EKU0X104
CONNECTORS		
CN 301	STRAIGHT CONNECTOR BASE or	J383C04UG002
	STRAIGHT PIN HEADER 4P 173981-4	1770260

Ref. No.	Description	Part No.
CN 571	CONNECTOR BASE 5P or	1730813
	CONNECTOR BASE 5P RTB-1.5-5P or	J3RTC05JG001
	CONNECTOR BASE 5P W-P3005-02	1730812
CN 691	CONNECTOR BASE 2P TV-50P-02-V1 or	J3RTC02TG001
	CONNECTOR BASE 2P RTB-1.5-2P	J3RTC02JG001
CN 801	STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
	STRAIGHT PIN HEADER 2P 173981-2	1770258
DIODES		
D 111	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 112	ZENER DIODE MTZJT-775.1B	QDTB0MTZJ5R1
D 113	ZENER DIODE MTZJT-773.9B	QDTB0MTZJ3R9
D 151	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 161 ⚠	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 162 ⚠	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 303	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D 320	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 321	PCB JUMPER D0.6-P5.0	JW5.0T
D 322	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 371	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 551	ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D 552	RECTIFIER DIODE ERA15-02	AERA1502****
D 571 ⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D 572 ⚠	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 573	PCB JUMPER D0.6-P5.0	JW5.0T
D 584	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 591 ⚠	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D 596 ⚠	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 605 ⚠	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE ERA15-04	QDQZ0ERA1504

Ref. No.	Description	Part No.
D 606 ⚠	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE ERA15-04	QDQZ0ERA1504
D 607 ⚠	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE ERA15-04	QDQZ0ERA1504
D 608 ⚠	RECTIFIER DIODE 1N4005 or	NDQZ001N4005
	RECTIFIER DIODE ERA15-04	QDQZ0ERA1504
D 612	SWITCHING DIODE 1N4148 T-77	QDTZ001N4148
D 613	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 621	ZENER DIODE MTZJT-773.0B	QDTB0MTZJ3R0
D 622	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 623	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 651 ⚠	FAST RECOVERY DIODE ERC25-06	QDQZ0ERC2506
D 652 ⚠	RECTIFIER DIODE ERA22-02	QDPZ0ERA2202
D 653 ⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D 654	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 656 ⚠	DIODE 1ZC33	QDQZ0001ZC33
D 659	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D 661	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 662	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 663 ⚠	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D 681	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 691	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 692	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 693	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D 694	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 801 ⚠	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T

Ref. No.	Description	Part No.
	ICS	
IC 101 ⚠	IC:TV MICON 8BIT M37272M8-069FP	QSMQA0SMB194
IC 151	IC:MEMORY 24LC01B/P or	NSMMA0SMH002
	IC:EEPROM 1K AT24C01A-10PC or	NSMMA0ZAZ003
	IC ST24C01FB6 or	NSMMA0ZSS004
	IC ST24C01CB1	NSMMA0ZSS002
IC 301 ⚠	IC:CHROMA/IF 1 CHIP M52775FP	QSBLA0RMB020
IC 551 ⚠	IC:VERTICAL OUT LA7837	QSBLA0ZSY003
IC 601 ⚠	PHOTO COUPLER PC817X6 or	QPE600PC817X
	PHOTO COUPLER PC817(BC)	QPP2000PC817
IC 801	IC TDA7231A	NSBLA0SSS001
	COILS	
L 2	PCB JUMPER D0.6-P5.0	JW5.0T
L 5	INDUCTOR 100µH-J or	LLARJCQTU101
	INDUCTOR 100µH-K	LLARKDQKA101
L 11	INDUCTOR 15µH-K-26T or	LLAXKATTU150
	INDUCTOR 15µH-K-26T	LLAXKDTKA150
L 111	INDUCTOR 22µH-K-5FT or	LLARKBSTU220
	INDUCTOR 22µH-K	LLARKDQKA220
L 303	INDUCTOR 22µH-K-26T or	LLAXKATTU220
	INDUCTOR 22µH-K-26T	LLAXKDTKA220
L 304	PCB JUMPER D0.6-P5.0	JW5.0T
L 321	INDUCTOR 22µH-K-5FT or	LLARKBSTU220
	INDUCTOR 22µH-K	LLARKDQKA220
L 360	INDUCTOR 33µH-K-26T or	LLAXKATTU330
	INDUCTOR 33µH-K-26T	LLAXKDTKA330
L 361	INDUCTOR 8.2µH-K-26T or	LLAXKATTU8R2
	INDUCTOR 8.2µH-K-26T	LLAXKDTKA8R2
L 362	INDUCTOR 18µH-K-26T or	LLAXKATTU180
	INDUCTOR 18µH-K-26T	LLAXKDTKA180
L 571	PCB JUMPER D0.6-P7.5	JW7.5T
L 572 ⚠	INDUCTOR 33µH-K-26T or	LLAXKATTU330
	INDUCTOR 33µH-K-26T	LLAXKDTKA330
L 601 ⚠	LINE FILTER LF005 or	LLBG00ZLH001
	LINE FILTER 5.0mH 6Y075 or	LLBG00ZKT004
	LINE FILTER 4.2mH	LLBG00ZTZ001
L 602	RESONUBA RS207	LLBZ00ZBF004
	TRANSISTORS	
Q 111	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 112	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	TRANSISTOR 2SA1015-GR-TPE2	QQS102SA1015
Q 311	RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
	RES. BUILT-IN TRANSISTOR 2SC3400	2SC3400Z
Q 321	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 341	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	TRANSISTOR 2SA1015-GR-TPE2	QQS102SA1015
Q 571 ⚠	TRANSISTOR 2SD1877	Q2SD1877CA00
Q 572 ⚠	TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q 591 ⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ

Ref. No.	Description	Part No.
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 601 ⚠	TRANSISTOR 2SC4507	QQQZ02SC4507
Q 602 ⚠	TRANSISTOR 2SD734F-NP-AQ	QQSF002SD734
Q 655	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 661 ⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 673 ⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 681 ⚠	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1318(T)-AANP or	2SA1318TZ
	TRANSISTOR 2SA1318(U)-AANP or	2SA1318UZ
	TRANSISTOR 2SA1015-GR-TPE2	QQS102SA1015
Q 682	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
Q 691 ⚠	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 692 ⚠	TRANSISTOR 2SC2120-O(TPE2) or	QQS002SC2120
	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 803	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198GR TO-92 or	NQS40KTC3198
	TRANSISTOR 2SC3331(T)-AANP or	2SC3331TZ
	TRANSISTOR 2SC3331(U)-AANP or	2SC3331UZ
	TRANSISTOR 2SC1815-GR-TPE2	QQS102SC1815
	RESISTORS	
J 134	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
J 153	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
J 155	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
J 211	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 3	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R 4	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 11	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R 101	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R 102	CHIP RES. 1/10W J 1.8k Ω or	RRXAJB6Z0182
	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R 103	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R 104	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R 105	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/10W J 8.2k Ω	RRXAJB5Z0822
R 106	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R 109	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103

Ref. No.	Description	Part No.
R 111	CHIP RES. 1/10W J 330 Ω or	RRXAJB6Z0331
	CHIP RES. 1/10W J 330 Ω	RRXAJB5Z0331
R 112	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R 113	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 114	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R 115	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 117	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 118	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 119	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R 121	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 122	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R 123	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 124	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 125	CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
	CHIP RES. 1/10W J 1.5k Ω	RRXAJB5Z0152
R 126	CHIP RES. 1/10W J 680 Ω or	RRXAJB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB5Z0681
R 127	CHIP RES. 1/10W J 680 Ω or	RRXAJB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB5Z0681
R 128	CHIP RES. 1/10W J 680 Ω or	RRXAJB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB5Z0681
R 131	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 132	CARBON RES. 1/4W J 82k Ω or	RCX4JATZ0823
	CARBON RES. 1/6W J 82k Ω	RCX6JATZ0823
R 141	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 142	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 150	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 151 ⚠	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R 152	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R 153	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 154	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 155	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 156	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 157	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 158 ⚠	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 159	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R 160	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R 161	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 162	CARBON RES. 1/4W J 18k Ω or	RCX4JATZ0183
	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183

Ref. No.	Description	Part No.
R 163	CHIP RES. 1/10W J 470k Ω or	RRXAJB6Z0474
	CHIP RES. 1/10W J 470k Ω	RRXAJB5Z0474
R 300	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 301	CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R 302	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 303	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 304	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 305	CHIP RES. 1/10W J 560 Ω or	RRXAJB6Z0561
	CHIP RES. 1/10W J 560 Ω	RRXAJB5Z0561
R 306	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 308	CARBON RES. 1/4W J 12k Ω or	RCX4JATZ0123
	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 309	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 310	PCB JUMPER D0.6-P5.0	JW5.0T
R 311	PCB JUMPER D0.6-P5.0	JW5.0T
R 312	CARBON RES. 1/4W J 10 Ω or	RCX4JATZ0100
	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 313	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 314	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 315	CARBON RES. 1/4W J 12k Ω or	RCX4JATZ0123
	CARBON RES. 1/6W J 12k Ω	RCX6JATZ0123
R 316	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 320	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 321	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 322	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 323	PCB JUMPER D0.6-P5.0	JW5.0T
R 324	CARBON RES. 1/4W J 18k Ω or	RCX4JATZ0183
	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 325	CHIP RES. 1/10W J 120k Ω or	RRXAJB6Z0124
	CHIP RES. 1/10W J 120k Ω	RRXAJB5Z0124
R 326	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 327	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 328	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 329	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 330	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 331	CARBON RES. 1/4W J 1.2k Ω or	RCX4JATZ0122
	CARBON RES. 1/6W J 1.2k Ω	RCX6JATZ0122
R 332	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 333	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 334	CARBON RES. 1/4W J 390k Ω or	RCX4JATZ0394
	CARBON RES. 1/6W J 390k Ω	RCX6JATZ0394
R 336	CARBON RES. 1/4W J 820k Ω or	RCX4JATZ0824
	CARBON RES. 1/6W J 820k Ω	RCX6JATZ0824
R 337	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 338	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471

Ref. No.	Description	Part No.
	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R 344	CARBON RES. 1/4W J 270k Ω or	RCX4JATZ0274
	CARBON RES. 1/6W J 270k Ω	RCX6JATZ0274
R 345	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 346	CHIP RES. 1/10W J 680 Ω or	RRXAJB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB5Z0681
R 347	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 348	CARBON RES. 1/4W J 150k Ω or	RCX4JATZ0154
	CARBON RES. 1/6W J 150k Ω	RCX6JATZ0154
R 349	CARBON RES. 1/4W J 330k Ω or	RCX4JATZ0334
	CARBON RES. 1/6W J 330k Ω	RCX6JATZ0334
R 351	CARBON RES. 1/4W J 3.9M Ω or	RCX4JATZ0395
	CARBON RES. 1/6W J 3.9M Ω	RCX6JATZ0395
R 352	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R 353	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 361	CHIP RES. 1/10W J 330 Ω or	RRXAJB6Z0331
	CHIP RES. 1/10W J 330 Ω	RRXAJB5Z0331
R 362	CHIP RES. 1/10W J 330 Ω or	RRXAJB6Z0331
	CHIP RES. 1/10W J 330 Ω	RRXAJB5Z0331
R 363	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R 364	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 365	CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
	CHIP RES. 1/10W J 33k Ω	RRXAJB5Z0333
R 366	CHIP RES. 1/10W J 56k Ω or	RRXAJB6Z0563
	CHIP RES. 1/10W J 56k Ω	RRXAJB5Z0563
R 367	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 369	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R 370	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 371	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 372	CARBON RES. 1/4W J 3.9k Ω or	RCX4JATZ0392
	CARBON RES. 1/6W J 3.9k Ω	RCX6JATZ0392
R 375	CHIP RES. 1/10W J 270 Ω or	RRXAJB6Z0271
	CHIP RES. 1/10W J 270 Ω	RRXAJB5Z0271
R 542	PCB JUMPER D0.6-P12.5	JW12.5T
R 551	CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 554	CARBON RES. 1/2W J 1.5k Ω or	RCX2152KA013
	CARBON RES. 1/2W J 1.5k Ω	RCX2JZPZ0152
R 555	CARBON RES. 1/4W J 68k Ω or	RCX4JATZ0683
	CARBON RES. 1/6W J 68k Ω	RCX6JATZ0683
R 557	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 558	CHIP RES. 1/10W J 12k Ω or	RRXAJB6Z0123
	CHIP RES. 1/10W J 12k Ω	RRXAJB5Z0123
R 559	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/10W J 68k Ω	RRXAJB5Z0683
R 560	CHIP RES. 1/10W J 5.6k Ω or	RRXAJB6Z0562
	CHIP RES. 1/10W J 5.6k Ω	RRXAJB5Z0562
R 561	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R 562	CARBON RES. 1/4W J 2.2 Ω	RCX4JATZ02R2
R 566 ⚠	FUSE RES. 1/4W J 4.7 Ω or	RFX44R7KA007
	FUSE RES. 1/4W J 4.7 Ω	RFX44R7UB002
R 568	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 569	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102

Ref. No.	Description	Part No.
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 572	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 574 ⚠	FIXED METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102KE007
	METAL RESISTOR 2W J 1k Ω or	RN02102ZU001
	METAL RESISTOR 2W J 1k Ω	RN02102UB001
R 575 ⚠	FIXED METAL OXIDE FILM RES. 2W J 1k Ω or	RN02102KE007
	METAL RESISTOR 2W J 1k Ω or	RN02102ZU001
	METAL RESISTOR 2W J 1k Ω	RN02102UB001
R 576	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 577	CHIP RES. 1/10W J 270 Ω or	RRXAJB6Z0271
	CHIP RES. 1/10W J 270 Ω	RRXAJB5Z0271
R 580	CARBON RES. 1/2W J 150 Ω or	RCX2151KA013
	CARBON RES. 1/2W J 150 Ω	RCX2JZPZ0151
R 581	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 582 ⚠	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R 583	FIXED METAL OXIDE FILM RES. 1W J 1.8 Ω or	RN011R8KE009
	METAL RESISTOR 1W J 1.8 Ω or	RN011R8UB001
	FIXED METAL OXIDE FILM RES. 1W J 1.8 Ω	RN011R8HH001
R 584 ⚠	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R 585	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	CHIP RES. 1/10W J 8.2k Ω	RRXAJB5Z0822
R 586	CHIP RES. 1/10W J 150k Ω or	RRXAJB6Z0154
	CHIP RES. 1/10W J 150k Ω	RRXAJB5Z0154
R 587	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/10W J 68k Ω	RRXAJB5Z0683
R 588	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 591 ⚠	CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
	CHIP RES. 1/10W J 33k Ω	RRXAJB5Z0333
R 592 ⚠	CHIP RES. 1/10W J 220k Ω or	RRXAJB6Z0224
	CHIP RES. 1/10W J 220k Ω	RRXAJB5Z0224
R 593 ⚠	CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
	CHIP RES. 1/10W J 33k Ω	RRXAJB5Z0333
R 594 ⚠	CHIP RES. 1/10W J 56k Ω or	RRXAJB6Z0563
	CHIP RES. 1/10W J 56k Ω	RRXAJB5Z0563
R 596 ⚠	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R 597 ⚠	CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
	CHIP RES. 1/10W J 22k Ω	RRXAJB5Z0223
R 598 ⚠	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R 601 ⚠	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2PG001
	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2UB001
	CEMENT RESISTOR 5W K 1.2 Ω	RW051R2KA006
R 602	CARBON RES. 1/4W J 470k Ω or	RCX4JATZ0474
	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R 603	CARBON RES. 1/4W J 470k Ω or	RCX4JATZ0474
	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R 605	CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 611	FIXED METAL OXIDE FILM RES. 1W J 18 Ω or	RN01180KE007
	METAL RESISTOR 1W J 18 Ω or	RN01180ZU001
	METAL RESISTOR 1W J 18 Ω	RN01180UB001
R 612	FIXED METAL OXIDE FILM RES. 1W J 15 Ω or	RN01150KE007
	METAL RESISTOR 1W J 15 Ω or	RN01150ZU001
	METAL RESISTOR 1W J 15 Ω	RN01150UB001
R 613	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 623	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 633 ⚠	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 634	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102

Ref. No.	Description	Part No.
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 641 ⚠	ANTI-SURGE RESISTOR 1/2W J 3.3M Ω or	RMX2335KA011
	CARBON RES. 1/2W J 3.3M Ω	RCX2335A4001
R 654	CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
	CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 655 ⚠	FIXED METAL OXIDE FILM RES. 1W J 12k Ω or	RN01123KE007
	METAL RESISTOR 1W J 12k Ω or	RN01123ZU001
	METAL RESISTOR 1W J 12k Ω	RN01123UB001
R 657	CHIP RES. 1/10W J 18k Ω or	RRXAJB6Z0183
	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R 658	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 659	CARBON RES. 1/4W J 220k Ω or	RCX4JATZ0224
	CARBON RES. 1/6W J 220k Ω	RCX6JATZ0224
R 660	PCB JUMPER D0.6-P5.0	JW5.0T
R 663	CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
	CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 664 ⚠	CHIP RES. 1/10W J 15k Ω or	RRXAJB6Z0153
	CHIP RES. 1/10W J 15k Ω	RRXAJB5Z0153
R 665	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 666	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 667	CARBON RES. 1/4W J 470k Ω or	RCX4JATZ0474
	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R 668	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 669	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 670 ⚠	CHIP RES. 1/10W J 470 Ω or	RRXAJB6Z0471
	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R 671 ⚠	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R 672	CARBON RES. 1/4W J 18k Ω or	RCX4JATZ0183
	CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 674	CARBON RES. 1/2W J 33k Ω or	RCX2333KA013
	CARBON RES. 1/2W J 33k Ω	RCX2JZPZ0333
R 675 ⚠	CARBON RES. 1/2W J 8.2k Ω or	RCX2822KA013
	CARBON RES. 1/2W J 8.2k Ω	RCX2JZPZ0822
R 676 ⚠	CARBON RES. 1/2W J 8.2k Ω or	RCX2822KA013
	CARBON RES. 1/2W J 8.2k Ω	RCX2JZPZ0822
R 677 ⚠	CARBON RES. 1/2W J 8.2k Ω or	RCX2822KA013
	CARBON RES. 1/2W J 8.2k Ω	RCX2JZPZ0822
R 678	PCB JUMPER D0.6-P5.0	JW5.0T
R 681	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R 682	CHIP RES. 1/10W J 68k Ω or	RRXAJB6Z0683
	CHIP RES. 1/10W J 68k Ω	RRXAJB5Z0683
R 683 ⚠	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R 684 ⚠	FUSING RES. 1/4W J 10 Ω or	RFX4100KA007
	FUSE RES. 1/4W J 10 Ω	RFX4100UB002
R 685	CHIP RES. 1/10W J 18k Ω or	RRXAJB6Z0183
	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R 686	CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 687	CARBON RES. 1/2W J 1.5k Ω or	RCX2152KA013
	CARBON RES. 1/2W J 1.5k Ω	RCX2JZPZ0152
R 691	CHIP RES. 1/10W J 390 Ω or	RRXAJB6Z0391
	CHIP RES. 1/10W J 390 Ω	RRXAJB5Z0391
R 692	CHIP RES. 1/10W J 680 Ω or	RRXAJB6Z0681
	CHIP RES. 1/10W J 680 Ω	RRXAJB5Z0681
R 693	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 694	CARBON RES. 1/2W J 1.5k Ω or	RCX2152KA013
	CARBON RES. 1/2W J 1.5k Ω	RCX2JZPZ0152

Ref. No.	Description	Part No.
R 695 ⚠	FIXED METAL OXIDE FILM RES. 1W J 12 Ω or	RN01120KE007
	METAL RESISTOR 1W J 12 Ω or	RN01120ZU001
	METAL RESISTOR 1W J 12 Ω	RN01120UB001
R 696	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 697 ⚠	FIXED METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390KE007
	METAL RESISTOR 1W J 39 Ω or	RN01390ZU001
	METAL RES. 1W J 39 Ω RSS-SMF P=15	RN01390UB001
R 698	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
R 699	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R 802 ⚠	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R 803 ⚠	CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R 805	CHIP RES. 1/10W J 27k Ω or	RRXAJB6Z0273
	CHIP RES. 1/10W J 27k Ω	RRXAJB5Z0273
R 806	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 807	PCB JUMPER D0.6-P5.0	JW5.0T
R 809 ⚠	FIXED METAL OXIDE FILM RES. 1W J 12 Ω or	RN01120KE007
	METAL RESISTOR 1W J 12 Ω or	RN01120ZU001
	METAL RESISTOR 1W J 12 Ω	RN01120UB001
R 811	CHIP RES. 1/10W J 10 Ω or	RRXAJB6Z0100
	CHIP RES. 1/10W J 10 Ω	RRXAJB5Z0100
R 812	CHIP RES. 1/10W J 3.9k Ω or	RRXAJB6Z0392
	CHIP RES. 1/10W J 3.9k Ω	RRXAJB5Z0392
R 821	CHIP RES. 1/10W 0 Ω or	RRXAZB6Z0000
	CHIP RES. 1/10W J 0 Ω	RRXAJB5Z0000
SWITCHES		
SW 101	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
SW 102	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
SW 103	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
SW 104	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
SW 105	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
SW 106	TACT SWITCH SKQSAB or	SST0101AL038
	PUSH SWITCH KSM0612B	SST0101HH003
TRANSFORMERS		
T 301	VCO COIL KHI-821023 or	LFA08V0KV002
	VCO COIL KS1252NC or	LFA08V0LH002
	CASING COIL S-7GC or	LFA07V0SF110
	COIL OSC K7-J1 R12 N657X	LFA07V0MM038
T 571 ⚠	FLYBACK TRANS FCA163 or	LTF00CPX5002
	FLYBACK TRANS JF0501-1621	LTF00CPXB008
T 572	H. DRIVE TRANS NR-7030-1	LTH00CPA5002
T 601 ⚠	SWITCHING TRANS S1806	LTT00CPSA040
VARIABLE RESISTORS		
VR 551	CARBON P.O.T. 50k Ω B or	VRCB503KA011
	CARBON P.O.T. 50k Ω B(H)	VRCB503HH009
VR 552	CARBON P.O.T. 10k Ω B or	VRCB103KA011
	CARBON P.O.T. 10k Ω B(H)	VRCB103HH009
VR 661 ⚠	CARBON P.O.T. 10k Ω B or	VRCB103KA011
	CARBON P.O.T. 10k Ω B(H)	VRCB103HH009
CRYSTAL OSCILLATORS		
X 151	CERAMIC RESONATOR ZTT 8.00MHz or	FY0805PLN001
	CERAMIC RESONATOR FCR8.0MC	FY0805PTE001
X 303	CERAMIC RESONATOR XZT503F18 or	FY0514PS0001
	CERAMIC RESONATOR CSB503F18	FY0504PMR001
X 321	CRYSTAL OSCILLATOR 3.579545 MHz or	FXD355LLN001
	CRYSTAL OSCILLATOR 3.58MHz	1811291

Ref. No.	Description	Part No.
MISCELLANEOUS		
B- 6	HEAT SINK(PCV)	0EM404257
B- 7	HEAT SINK(PCW)	0EM404260
B- 8	HEAT SINK(PCX)	0EM404262
B- 12	CLOTH(65) L7735TR:65X10X0.5T	0EM402149
BC 551	BEAD INDUCTORS 1-03-BAR-510X or	LLBF00ZF8001
	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXM001
BC 571	BEAD INDUCTOR RH3.5X10X1.3A CHOKE or	LLBF00ZY2002
	BEAD INDUCTOR BL02RN1-R62	1190024
BC 601	BEAD INDUCTORS 1-03-BAR-510X or	LLBF00ZF8001
	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXM001
BC 651	BEAD INDUCTORS 1-03-BAR-510X or	LLBF00ZF8001
	BEAD INDUCTORS B16RH3.5X10X1.3X2	LLBF00ZXM001
CF 301	CERAMIC TRAP 4.5MHz or	FBE455PS0001
	CERAMIC FILTER TPS 4.5MB2	1810897
CF 302	CERAMIC FILTER LT4.5MB or	FBB455PS0001
	CERAMIC FILTER SFSH4.5MCB	FBB455PMR001
CL301A	WIRE HOLDER 5P HWT0200-05 or	XW0HT05C7001
	WIRE HOLDER 5P 51048-0500	XW01D05NF001
CL301B	WIRE HOLDER 5P HWT0200-05 or	XW0HT05C7001
	WIRE HOLDER 5P 51048-0500	XW01D05NF001
CLN 1	WIRE 060/BLA/AWG26#1007	WX3001A6FF06
CLN 2	LEAD WIRE(YELLOW) UL1007TC AWG26 140MM	WX3401A6FF14
CLN 3	WIRE 030/BLA/AWG26#1007	WX3001A6FF03
CLN301	LEAD WIRE 5P 300/BLA/AWG26#2468	WX3005J65530
F 601 ⚠	FUSE 4A/125V 237 TYPE	PAGJ20CAG402
FH 601	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078 or	XH01Z00DK001
	HOLDER FUSE CNT41-0014	1790424
FH 602	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078 or	XH01Z00DK001
	HOLDER FUSE CNT41-0014	1790424
GP 641 ⚠	GAP. G3.35	FAZ000LD6002
L- 1	SCREW B-TIGHT 3X8 BIND HEAD+ or	GBMB3080
	SCREW B-TIGHT 3X8 BIND HEAD+ or	GBMB3080
	SCREW B-TIGHT 3X8 BIND HEAD+	GBMB3080
PS 691 ⚠	POSISTOR B59481-S1050-B10 or	NN4Z0B59481S
	POSISTOR ZPB31BL7R0B	5790124
RCV101	REMOCON RECEIVE UNIT PIC-26042SR	USESJRSKK023
SF 1	SAW FILTER TSF5220P or	FBB456PSY007
	SAW FILTER M1958M	FBB456PEB001
TU 1	TUNER UNIT NJH3022U004 or	UTUNNTUJR006
	TUNER UNIT 115-B-8035AP	UTUNNTUSP009
W 601 ⚠	AC CORD LA-2034	WAC0172LW004

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA Consists of the following	———
CAPACITORS		
C 501	CHIP CERAMIC CAP. SL J 120pF/50V	CHE1JJBSL121
C 502	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 503	CHIP CERAMIC CAP. SL J 180pF/50V	CHE1JJBSL181
C 504	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C 510	CERAMIC CAP. 0.001μF/2kV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2kV	CA3D102MR030
CONNECTOR		
CN 501	CONNECTOR PIN 1P RT-01N-2.3A or	1730688
	CONNECTOR PIN 1P LV	1700576
DIODES		
D 501	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T

Ref. No.	Description	Part No.
D 502	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
D 503	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	SWITCHING DIODE GMB01-BT or	GMB01BT
	DIODE 1SS176TPA7	1SS176T
	COIL	
L 501	INDUCTOR 180µH-J or	LLARJCQTU181
	INDUCTOR 180µH-K	LLARKDQKA181
	TRANSISTORS	
Q 501	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE	QQSD02SC3468
Q 502	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE	QQSD02SC3468
Q 503	TRANSISTOR 2SC2271(D)-AEMP or	2SC2271DZ
	TRANSISTOR 2SC2271(E)-AE or	QQSE02SC2271
	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE	QQSD02SC3468
	RESISTORS	
R 501 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153KE007
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	METAL RESISTOR 1W J 15k Ω	RN01153UB001
R 502 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153KE007
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
	METAL RESISTOR 1W J 15k Ω	RN01153UB001
R 503 ⚠	FIXED METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153KE007
	METAL RESISTOR 1W J 15k Ω or	RN01153ZU001
R 503	METAL RESISTOR 1W J 15k Ω	RN01153UB001
R 504	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 504	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 505	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 505	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 506	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 506	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 507	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 507	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 508	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 508	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 511	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R 511	CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 512	CHIP RES. 1/10W J 3.3k Ω	RRXAJB6Z0332
R 512	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R 513	CHIP RES. 1/10W J 3.3k Ω	RRXAJB6Z0332
R 513	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R 514	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R 514	CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 516	CHIP RES. 1/10W J 33 Ω	RRXAJB6Z0330
R 516	CHIP RES. 1/10W J 33 Ω	RRXAJB5Z0330
R 517	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 517	CHIP RES. 1/10W J 560 Ω	RRXAJB5Z0561
R 518	CHIP RES. 1/10W J 33 Ω	RRXAJB6Z0330
R 518	CHIP RES. 1/10W J 33 Ω	RRXAJB5Z0330

Ref. No.	Description	Part No.
R 519	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 519	CHIP RES. 1/10W J 560 Ω	RRXAJB5Z0561
R 520	CHIP RES. 1/10W J 33 Ω	RRXAJB6Z0330
R 520	CHIP RES. 1/10W J 33 Ω	RRXAJB5Z0330
R 521	CHIP RES. 1/10W J 560 Ω	RRXAJB6Z0561
R 521	CHIP RES. 1/10W J 560 Ω	RRXAJB5Z0561
	MISCELLANEOUS	
CL501A	WIRE HOLDER 3P HWT0200-03	XW0HT03C7001
CL501A	WIRE HOLDER 3P 51048-0300	XW01D03NF001
CL501B	WIRE HOLDER 3P HWT0200-03	XW0HT03C7001
CL501B	WIRE HOLDER 3P 51048-0300	XW01D03NF001
CLN501	WIRE 3C L=230MM(5MM)	WX3003J65523
JK 501 ⚠	CRT SOCKET ISMS02S	JSCC220PK003
CLN551	CRT GND WIRE CRT GND	WX1L7720-001
	LEAD CLAMPER	1790256

Chassis Electrical Parts

Ref. No.	Description	Part No.
CLN801	WIRE ASSEMBLY	WX1L7820-002
SP 801	SPEAKER S08J72A1 or	DSD0808XQ002
	SPEAKER S08J59B or	DSD0808XQ001
	SPEAKER EU77A21	DSD0808E6001
L 691	DEGAUSSING COIL AVDG013 or	LLBH00ZWR017
	DEGAUSSING COIL	LLBH00ZTZ017
	NEEDS FOLLOWING PARTS FOR USE AS CRT ASSEMBLY	
V 501 ⚠	CRT(BARE+DY) A34AGT13X09 K	TCRT190CP021
	RUBBER MAGNET 20X10X1.2	XM05000BV001
	WEDGE TAPE BLACK 50MM	0EZZ00083
	NEEDS FOLLOWING PARTS FOR USE AS CRT ASSEMBLY	
V 501 ⚠	CRT A34KQW42X	TCRT190SM013
L 551 ⚠	DEFLECTION YOKE DST1492XL or	LLBY00ZSM004
	DEFLECTION YOKE KDY3GC734X	LLBY00ZMS006
	C.P.MAGNET JH225-FN-00	XM04000BV003
	RUBBER MAGNET 20X10X1.2	XM05000BV001
	NECK TAPE WHITE 80MM	0EZZ00081
	WEDGE TAPE BLACK 50MM	0EZZ00083
	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	NEEDS FOLLOWING PARTS FOR USE AS CRT ASSEMBLY	
V 501 ⚠	CRT A34JFQ90X(VW)	TCRT190P7001
L 551 ⚠	DEFLECTION YOKE KDY3GD592X	LLBY00ZMS004
	C.P.MAGNET JH225-FN-00	XM04000BV003
	RUBBER MAGNET 20X10X1.2	XM05000BV001
	NECK TAPE WHITE 80MM	0EZZ00081
	WEDGE TAPE BLACK 50MM	0EZZ00083
	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	NEEDS FOLLOWING PARTS FOR USE AS CRT ASSEMBLY	
V 501 ⚠	CRT A34KPU02XX	TCRT190GS016
L 551 ⚠	DEFLECTION YOKE KDY3GC587X	LLBY00ZMS003
	C.P.MAGNET JH225-FN-00	XM04000BV003
	NECK TAPE WHITE 80MM	0EZZ00081
	WEDGE TAPE BLACK 50MM	0EZZ00083
	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001

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